Encyclopedia of

EDUCATIONAL THEORY *and* PHILOSOPHY

D. C. PHILLIPS EDITOR

Encyclopedia of

EDUCATIONAL THEORY *and* PHILOSOPHY

Editorial Board

Encyclopedia of

EDUCATIONAL THEORY *and* PHILOSOPHY

Edited by

D. C. Phillips
Stanford University

1

$SAGE reference

SAGE

Los Angeles | London | New Delhi
Singapore | Washington DC

Copyright © 2014 by SAGE Publications, Inc.

Printed in the United States of America.

14 15 16 17 18 10 9 8 7 6 5 4 3 2 1

Contents

List of Entries

Reader's Guide

Aims of Education

Adler, Mortimer, and the Paideia Program
Aesthetic Education
Aims, Concept of
Arnold, Matthew
Autonomy
Bildung
Cardinal Principles of Secondary Education
Character Development
Citizenship and Civic Education
Cosmopolitanism
Creative and Lateral Thinking: Edward de Bono
Creativity
Critical Thinking
Cultural Literacy and Core Knowledge/Skills
Dewey, John
Goodman, Paul
Happiness
Lifelong Education
Literacy and the New Literacy Studies
Makiguchi, Tsunesaburo
Mill, John Stuart
Montaigne, Michel de
Moral Education
Multiculturalism
Newman, John Henry (Cardinal)
Noddings, Nel
Paideia
Patriotism
Peace Education
Peters, R. S.
Phronesis (Practical Reason)
Plato
Rationality and Its Cultivation
Religious Education and Spirituality
Rousseau, Jean-Jacques
Scheffler, Israel
Utopias
Vocational Education
Whitehead, Alfred N.

Classic Premodern Philosophers, Theories, and Theorists

Aquinas and Thomism
Aristotle
Augustine
Bacon, Francis
Cicero
Comenius, Johann Amos
Confucius
Daoism
Erasmus
Isocrates
Mencius
Paideia
Plato
Quintilian
Socrates and Socratic Dialogue
Sophists

Curriculum

Accountability and Standards-Based Reform
Adler, Mortimer, and the Paideia Program
Apple, Michael
Bruner, Jerome
Cardinal Principles of Secondary Education
Common Curriculum
Creative and Lateral Thinking: Edward de Bono
Critical Thinking
Curriculum, Construction and Evaluation of
Dalton Plan
Dewey, John
Disciplinarity
Erasmus
Experiential Learning
Hidden Curriculum
Homeschooling
Knowledge, Structure of: From Aristotle to Bruner and Hirst
Laboratory School, University of Chicago

Liberal Education

Moral, Religious, Spiritual, and Social/ Cultural Values

Multiculturalism and Special Populations

Stereotype Effects and Attributions:
    Inside and Out
Wollstonecraft, Mary
Young, Iris Marion

Philosophy of Education: Nonwestern Traditions

Confucius
Daoism
Gandhi, Mahatma
Indian Religious and Philosophical Traditions
    and Education
Makiguchi, Tsunesaburo
Mencius
Muslim Educational Traditions

Philosophy of Education: The Political Theory Tradition

Autonomy
Capability Approach: Martha Nussbaum and
    Amartya Sen
Cavell, Stanley
Children's Rights
Citizenship and Civic Education
Communitarianism
Deliberative Democracy
Democratic Theory of Education
Equality of Educational Opportunity
Ideology
Legal Decisions Affecting Education
Liberalism
MacIntyre, Alasdair
Marx, Karl
Mill, John Stuart
Multicultural Citizenship
Neoliberalism
Oakeshott, Michael
Rawls, John
Right to an Education
Rights: Children, Parents, and Community
Toleration
Utilitarianism

Philosophy of Education: The Pragmatic Tradition

Addams, Jane
Dewey, John
Emerson, Ralph Waldo
Evolution and Educational Psychology
James, William

Mead, George Herbert
Spectator Theory of Knowledge

Philosophy of Science, Sociology of Science, and Epistemology

Causation
Dewey, John
Edinburgh School of Sociology of Knowledge
Educational Research, Critiques of
Educational Science
Educational Theory, Nature of
Epistemology, Multicultural
Experimental and Quasi-Experimental Designs
    for Research: Campbell and Stanley
Feminist Standpoint Theory
Hermeneutics
Kuhn, Thomas S.
Lakatos, Imre
Locke, John
Philosophical Issues in Educational
    Research: An Overview
Popper, Karl
Positivism
Postmodernism
Postpositivism
Social Constructionism
Validity, Types of
Value-Free Ideal for Research: Controversies

Progressive Education

Dewey, John
Du Bois, W. E. B.
Laboratory School, University of Chicago
Lifelong Education
Little Commonwealth: Homer Lane
Neill, A. S., and Summerhill
Play
Productive Labor and Occupations: From Dewey
    to Makarenko
Progressive Education and Its Critics
Project Method
Rousseau, Jean-Jacques
Russell, Bertrand
Waldorf Education: Rudolf Steiner

Psychological Orientation in Educational Theory

Abilities, Measurement of
Achievement Motivation
Activity Theory

Social Sciences Orientation in Educational Theory

About the Editor

D. C. Phillips (PhD, University of Melbourne, Australia) is Professor Emeritus of Education, and by courtesy of Philosophy, at Stanford University, where he has also served as Associate Dean for Academic Affairs and Interim Dean of the School of Education. He was a member of the Stanford Evaluation Consortium (directed by Lee J. Cronbach), and for several years he led its training program in evaluation of educational and social programs.

A philosopher of education and philosopher of social science educated in Australia, he is the author, coauthor, or editor of 13 books, which between them have been translated into six languages—titles include *Holistic Thought in Social Science*; *Visions of Childhood: Influential Models From Locke to Spock* (with John Cleverley); *Perspectives on Learning* (five editions, with Jonas Soltis); *Philosophy, Science and Social Inquiry: Contemporary Methodological Controversies in Social Science and Related Applied Fields of Research*; *Toward Reform of Program Evaluation* (with Lee J. Cronbach et al.); *Postpositivism and Educational Research* (with Nicholas Burbules); *The Expanded Social Scientist's Bestiary*; and *Education, Culture, and Epistemological Diversity* (with Claudia Ruitenberg). He was a member of the group that authored the National Research Council report in the United States: *Scientific Research in Education*.

In addition, he is the author of more than 120 essays in books and refereed journals, including *Educational Researcher*, *Harvard Educational Review*, *Educational Psychologist*, *Psychological Review*, *Educational Theory*, *Journal of Philosophy of Education*, *The Monist*, and *Journal of the History of Ideas*. His most heavily cited article, first published in *Educational Researcher*, is "The Good, the Bad, and the Ugly: The Many Faces of Constructivism."

He is a member (emeritus) of the U.S. National Academy of Education and a fellow of the International Academy of Education and of the American Educational Research Association; he also has been a fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University, and Christensen Fellow at St. Catherine's College, Oxford; and he has been an academic visitor or guest lecturer at numerous universities around the world. He was president of the Philosophy of Education Society during its 50th anniversary year of 1990–1991.

Contributors

Catherine Adams
University of Alberta

Leena Alanen
University of Jyväskylä

Hanan Alexander
University of Haifa

Ansgar Allen
The University of Sheffield

Wolfgang Althof
University of Missouri–St. Louis

James D. Anderson
University of Illinois at Urbana–Champaign

Lorin W. Anderson
University of South Carolina

Ivan K. Ash
Old Dominion University

Nafsika Athanassoulis
Independent Researcher

Janice Aurini
University of Waterloo

William C. Ayers
University of Illinois at Chicago

Stephen J. Ball
Institute of Education, University of London

Brigid Barron
Stanford University

Robin Barrow
Simon Fraser University

Johannes Bellmann
University of Münster

Gert Biesta
University of Luxembourg

Sean Blenkinsop
Simon Fraser University

Lawrence Blum
University of Massachusetts Boston

Andrew Bourelle
University of New Mexico

Eric Bredo
University of Toronto

Kevin J. Brehony
University of Roehampton

Harry Brighouse
University of Wisconsin–Madison

Deborah P. Britzman
York University

Donald Broady
Uppsala University

Elizabeth R. Brown
Montana State University

Bertram C. Bruce
University of Illinois at Urbana–Champaign

Nicholas C. Burbules
University of Illinois at Urbana–Champaign

Gilbert Burgh
The University of Queensland

Robert Calfee
Stanford University

Eamonn Callan
Stanford University

David Carr
University of Edinburgh

Laurel Carrington
St. Olaf College

Stephanie Riegg Cellini
The George Washington University

Daniele Checchi
University of Milan

Ann Chinnery
Simon Fraser University

Anna T. Cianciolo
Southern Illinois University School of Medicine

Ruth Cigman
Institute of Education, University of London

Renée T. Clift
The University of Arizona

Paula Marantz Cohen
Drexel University

Mike Cole
University of East London

Josh Corngold
University of Tulsa

Lyn Corno
Teachers College, Columbia University

Serafin M. Coronel-Molina
Indiana University

M. Victoria Costa
William & Mary

Anna Craft
University of Exeter and The Open University

Stephen Crain
Macquarie University

Larry Cuban
Stanford University

Randall Curren
University of Rochester

Stefaan E. Cuypers
University of Leuven

Mark Daniels
The University of Texas at Austin

Andrew Davis
Durham University

Erik De Corte
University of Leuven

Daniel R. DeNicola
Gettysburg College

Eugene M. DeRobertis
Brookdale Community College

David Detmer
Purdue University Calumet

Jonathan R. Dolle
Carnegie Foundation

Anne-Marie Drouin-Hans
Université de Bourgogne

Joseph Dunne
St. Patrick's College, Dublin City University

Andrea R. English
Mount Saint Vincent University

Penny Enslin
University of Glasgow

Selen Ayirtman Ercan
University of Canberra

David P. Ericson
University of Hawai'i at Mānoa

Amber Esping
Texas Christian University

Ian M. Evans
Massey University

William Evans
Saint Peter's University

Thomas D. Fallace
William Paterson University

George Fallis
York University

Walter Feinberg
University of Illinois at Urbana–Champaign

Lynn Fendler
Michigan State University

Michael J. Feuer
The George Washington University

Scott Fletcher
Lewis & Clark College

David J. Flinders
Indiana University

Robert E. Floden
Michigan State University

Mark Francis
University of Canterbury

H. Jerome Freiberg
University of Houston

Benjamin Frymer
Sonoma State University

Liam Gearon
University of Oxford

Hunter Gehlbach
Harvard University

Ameena Ghaffar-Kucher
University of Pennsylvania

Anthony Giambusso
Metropolitan State University of Denver

Tal Gilead
The Hebrew University of Jerusalem

Ronald David Glass
University of California, Santa Cruz

Mordechai Gordon
Quinnipiac University

Roland Grabner
ETH Zürich

James G. Greeno
University of Pittsburgh

Patrick Griffin
University of Melbourne

Morwenna Griffiths
University of Edinburgh

Louis Finbarr Groarke
St. Francis Xavier University

Joan E. Grusec
University of Toronto

Patricia Gurin
University of Michigan

Kris D. Gutiérrez
University of Colorado Boulder

Paul Hager
University of Technology, Sydney

Kenji Hakuta
Stanford University

Michael Hand
University of Birmingham

Eric A. Hanushek
Stanford University

Sophie Haroutunian-Gordon
Northwestern University

Maher Hashweh
Birzeit University

John Hattie
University of Melbourne

Nicki Hedge
University of Glasgow

Fiona J. Hibberd
University of Sydney

Chris Higgins
University of Illinois at Urbana–Champaign

Geoffrey M. Hodgson
University of Hertfordshire

Pádraig Hogan
National University of Ireland, Maynooth

Katariina Holma
University of Eastern Finland

Kenneth R. Howe
University of Colorado Boulder

Woei Hung
University of North Dakota

Meghan Huntoon
Montana State University

Terry Hyland
University of Bolton

Michael Imber
University of Kansas

Sharon Jessop
University of Strathclyde

Katherine K. Jo
Arden Seminars

James E. Johnson
Pennsylvania State University

Mina C. Johnson-Glenberg
Arizona State University

A. Susan Jurow
University of Colorado Boulder

John Kadvany
Policy & Decision Science Consultant

Morimichi Kato
Sophia University

Michael S. Katz
San José State University

Karsten Kenklies
University of Jena

Duncan F. Kennedy
University of Bristol

Deborah Kerdeman
University of Washington

Hye-Kyung Kim
University of Wisconsin–Green Bay

Ben Kirshner
University of Colorado Boulder

Christopher C. Klein
Middle Tennessee State University

Michael Knoll
Catholic University of Eichstätt-Ingolstadt

Victor N. Kobayashi
University of Hawai'i at Mānoa

Barry J. Koch
Newman University

Wendy Kohli
Fairfield University

Robert Kunzman
Indiana University

Tone Kvernbekk
University of Oslo

Patrick C. Kyllonen
Educational Testing Service

David F. Labaree
Stanford University

Gloria Ladson-Billings
University of Wisconsin–Madison

Kristin Hansen Lagattuta
University of California, Davis

Susan Laird
University of Oklahoma

Iddo Landau
University of Haifa

Hugh Lauder
University of Bath

Megan J. Laverty
Teachers College, Columbia University

Meira Levinson
Harvard University

Jon A. Levisohn
Brandeis University

Rodolfo Leyva
King's College London

John Loughran
Monash University

Orlando Lourenço
University of Lisbon

Christopher A. Lubienski
University of Illinois at Urbana–Champaign

Kathleen Lynch
University College Dublin

Jim Mackenzie
University of Sydney

Ellen B. Mandinach
WestEd

Max van Manen
University of Alberta

Michael van Manen
University of Alberta

Simon Marginson
University of Melbourne

Gary M. Marks
University of Melbourne

Jack Martin
Simon Fraser University

Michael R. Matthews
University of New South Wales

Bruce Maxwell
Université du Québec à Trois-Rivières

Richard E. Mayer
University of California, Santa Barbara

Cris Mayo
University of Illinois at Urbana–Champaign

Robert O. McClintock
Teachers College, Columbia University

Ray McDermott
Stanford University

Kevin McDonough
McGill University

Julie McLeod
University of Melbourne

Lisa McNulty
Regent's American College London

Peter Menck
University of Siegen

Michael S. Merry
University of Amsterdam

Alistair Miller
Institute of Education, University of London

Avi I. Mintz
University of Tulsa

Gary Miron
Western Michigan University

Koichi Miyata
Soka University

Elizabeth Birr Moje
University of Michigan

William Monroe
University of Houston

Kristin Anderson Moore
Child Trends

Jeffrey Morgan
University of the Fraser Valley

Raymond A. Morrow
University of Alberta

Michele S. Moses
University of Colorado Boulder

Pamela A. Moss
University of Michigan

James R. Muir
University of Winnipeg

D. G. Mulcahy
Central Connecticut State University

Johan Muller
University of Cape Town

Biren (Ratnesh) A. Nagda
University of Washington

Greta Kallio Nagel
Museum of Teaching and Learning, California

Darcia Narvaez
University of Notre Dame

Peter Nelsen
Appalachian State University

Anne Newman
University of California, Santa Cruz

Stephen P. Norris
University of Alberta

Alis E. Oancea
University of Oxford

Kevin O'Connor
University of Colorado Boulder

Jürgen Oelkers
University of Zürich

Anthony J. Onwuegbuzie
Sam Houston State University

Erik Owens
Boston College

James S. Page
University of New England

Farid Panjwani
Institute of Education, University of London

Eleonora Papaleontiou-Louca
European University of Cyprus

Jan Parker
The Open University

Shirley Pendlebury
University of Cape Town

William R. Penuel
University of Colorado Boulder

D. C. Phillips
Stanford University

Piet van der Ploeg
University of Groningen

Jonathan A. Plucker
Indiana University

Joseph L. Polman
University of Colorado Boulder

Anne-Françoise Praz
University of Fribourg

Nicholas Preus
Luther College

Richard Pring
University of Oxford

Mastin Prinsloo
University of Cape Town

Eugene F. Provenzo Jr.
University of Miami

Mark Ralkowski
The George Washington University

Diane Reay
University of Cambridge

Rob Reich
Stanford University

Roland Reichenbach
University of Basel

Robert A. Rhoads
University of California, Los Angeles

Karen L. Riley
Auburn University at Montgomery

Fazal Rizvi
University of Melbourne

Viviane M. J. Robinson
The University of Auckland

Rebecca Rogers
University of Missouri–St. Louis

E. Wayne Ross
The University of British Columbia

Klas Roth
Stockholm University

Claudia W. Ruitenberg
The University of British Columbia

Russell W. Rumberger
University of California, Santa Barbara

Naoko Saito
Kyoto University

Beth Lewis Samuelson
Indiana University Bloomington

William A. Sandoval
University of California, Los Angeles

Mitja Sardoč
Educational Research Institute, Slovenia

William H. Schubert
University of Illinois at Chicago

Ralph Schumacher
ETH Zürich

Dale H. Schunk
The University of North Carolina at Greensboro

Thomas A. Schwandt
University of Illinois at Urbana–Champaign

Bernard Schweizer
Long Island University

Samuel Scolnicov
The Hebrew University of Jerusalem

Jay Sherry
Independent Scholar

Richard Siegesmund
Northern Illinois University

Stephen Silverman
Teachers College, Columbia University

Rama Shankar Singh
McMaster University

Tove Skutnabb-Kangas
Åbo Akademi University

Peter Slezak
University of New South Wales

Robin Small
The University of Auckland

Jessi L. Smith
Montana State University

Richard Smith
Durham University

Samuel James Smith
Liberty University

Henderikus J. Stam
University of Calgary

Paul Standish
Institute of Education, University of London

Timothy K. Stanton
Stanford University

Kurt R. Stemhagen
Virginia Commonwealth University

Barbara S. Stengel
Vanderbilt University

Elsbeth Stern
ETH Zürich

Deborah Stipek
Stanford University

Jake E. Stone
Simon Fraser

Lynda Stone
University of North Carolina, Chapel Hill

Ingerid S. Straume
University of Oslo

Joanna Swann
Independent Scholar, UK

John Sweller
University of New South Wales

Charlene Tan
Nanyang Technological University

Lorella Terzi
University of Roehampton

Barbara J. Thayer-Bacon
University of Tennessee

Glyn Thomas
The University of Queensland

Rosalind Thornton
Macquarie University, Australia

Stephen J. Thornton
University of South Florida

Leon P. Tikly
Bristol University

Sharon Todd
Stockholm University

Steven Tozer
University of Illinois at Chicago

Nigel Tubbs
University of Winchester

P. Bruce Uhrmacher
Morgridge College of Education, University of Denver

Raf Vanderstraeten
Ghent University

Hervé Varenne
Teachers College, Columbia University

Stella Vosniadou
University of Athens

David I. Waddington
Concordia University

Yusef Waghid
Stellenbosch University

Kenneth Wain
University of Malta

Leonard Waks
Temple University

Bryan R. Warnick
The Ohio State University

Kathryn R. Wentzel
University of Maryland

Ian Westbury
University of Illinois at Urbana–Champaign

Edward W. Wiley
Senior Measurement Scientist, SK Partners, LLC

Kevin Williams
Mater Dei Institute of Education

Suzanne M. Wilson
University of Connecticut Neag School of Education

Christopher Winch
King's College London

Philip H. Winne
Simon Fraser University

Jennifer P. Wisdom
The George Washington University

Kenneth K. Wong
Brown University

Howard Woodhouse
University of Saskatchewan

Christoph Wulf
Free University of Berlin

Anton Yasnitsky
University of Toronto

Deborah Youdell
University of Birmingham

Joseph Zajda
Australian Catholic University

Jon Igelmo Zaldívar
Universidad de Deusto

Barry J. Zimmerman
Graduate Center of City University of New York

Introduction

In the justly famous opening speech of Shakespeare's *Henry V*, Chorus confronts the audience with several rhetorical questions: "Can this cockpit hold the vasty fields of France? Or may we cram within this wooden O, the very casques that did affright the air at Agincourt?" Probably not, but we might come close if we exercise our imaginations! As editor of this encyclopedia, I have been faced with a parallel set of questions: Can I cram within these two handsome volumes an account of every theory and philosophical position that has been put forward in the realm of education? And can the accounts that do get included be concise, scholarly, and readable? The answer to the first of these is "certainly not," but the answer to the second, I am confident, is "yes."

It is necessary to linger over the first question and to comment on several factors that make a negative answer inevitable. First, of course, is the sheer volume of potential material; education (either formal or informal) has been a prominent concern of every known human society; and, from at least the time of Confucius in the East and Plato in the West, philosophers and others with inquiring minds have been pondering its role and nature, and reflecting also on matters that are not specifically educational but which have a bearing on it—human rights, the nature of mind, the forces driving and shaping human development from the cradle to the grave, the structure of society, the nature of virtue, the warranting of knowledge claims, and many others. To make matters more difficult (for an editor of an encyclopedia), the philosophical and educational traditions of the East and the West have diverged, and even within geographical regions, there have been philosophical diversification and concomitant misunderstandings (e.g., in the West, Continental philosophy and Anglo-American philosophy have each spawned major schools of thought). Finally, the growth of empirical research into human affairs—which of course includes education and related social phenomena—has, over the past two centuries or so, generated an enormous number of theories, hypotheses, findings, and hitherto unrecognized problems that have been the source of new speculations; and many of these have been potential candidates for inclusion in this encyclopedia.

Clearly, there is no "fail-safe" way to ensure that everything that ought to be included has been included; the hapless encyclopedia editor cannot escape making choices about what should be included and what should be cast aside. However, strenuous efforts have been made to ensure that the contents of these volumes reflect the state of the fields being discussed more than they reflect the ignorance of the editor; these efforts were made in large part by the editorial board (whose members were drawn from Canada, Germany, South Africa, the United Kingdom, and the United States), supplemented by professional colleagues and former students spread across several continents. There can be no disguising the fact, however, that the great personal interest I have had in certain theories and issues in the fields of education and philosophy has left an indelible imprint on the completed encyclopedia.

Unfortunately, the list of heart-wrenching difficulties that faced the editor is not complete. Even worse than the problems presented by the sheer bulk of material that was potentially relevant across the domain of philosophy of education and the other fields where theories have been generated were the problems presented by the three key terms in this encyclopedia's title: "theory," "philosophy," and "education."

The Concept of Education

To start, it needs to be recognized that there is far from full agreement among philosophers of education about how the concept of education itself ought to be understood. John Dewey stressed

that education was "coextensive" with life itself, and he also identified it with growth. Many thinkers working in the Continental philosophical tradition have identified education with a similar but not quite identical concept, "formation" (or *bildung*); some writers treat "education" and "schooling" as synonyms, while others insist that some things that take place in formal schooling are not educational and that some things that are educational take place outside of schools; and many scholars have pointed out that education provides individuals with the skills and knowledge to foster development of their autonomy or rationality, while others point to education's role in developing important social traits such as citizenship. All these matters are discussed at greater length in entries in this encyclopedia. As editor, I did not choose to adjudicate on these matters at the outset and adopted a liberal stance so that relevant topics would not escape the net I was casting.

Selection of the Theories

Next comes the troublesome term *theory* and its operationalization in these volumes (an even more detailed discussion may be found in the entry "Educational Theory, Nature of" in the body of this encyclopedia). The problem that had to be confronted was the variety of usages that exist here. But before discussing these, there is a prior matter that needs to be addressed: There are many topics of educational significance in the encyclopedia that seem at first blush not to involve theories in any sense at all—such as achievement gap, Montessori education, and utopias. However, the first of these names a phenomenon that has been discovered and studied empirically, and about which explanatory theories have been constructed; the second refers to a type of schooling—but one inspired by an educationist whose life's work was certainly motivated by strongly held theories; and the third refers to a category of literary works produced by authors who were strong critics of the society of their times and who usually had political or philosophical theories about the direction in which social change should occur. In short, it takes but little reflection to reveal that theories (in one or other of the term's senses) lie just below the surface of the entry titles.

But to return to the difficulties presented by the various sense of the term *theory*: The first of these, as dictionaries make clear, is what could be called the nontechnical and broadly encompassing ordinary-language sense in which *theory* is roughly synonymous with *assumption*, *guess*, or *hypothesis* (as in "My theory about the outcome of the Presidential election is . . ."). This broad, nontechnical sense of the term is made more difficult to deal with by the fact that the guess or hypothesis might be about things such as the causal mechanisms that are operating in a particular situation, about likely effects or consequences of taking a particular course of action, about policies that might be adopted to remedy a problem, or about the most fruitful way to conceptualize a problem or domain. Education-related examples of these broad uses abound: the theory that declining standards can be dealt with by the use of high-stakes testing; A. S. Neill's theory that the school dropout problem, and refusal to seriously engage with learning, can be combated by making attendance at school classes voluntary; or the theory that a major cause of the dropout problem is alienation.

Second, there is what might be termed a more technical usage—or more accurately, a set of usages—according to which the term refers to theories in the sciences. Caution is called for here, as it must not be assumed that there is one basic form that all scientific theories take, or even that there is a common function that all scientific theories fulfill. The fact is, the structure of theories and the ways in which they interrelate with scientific practice across the various physical, biological, social, and applied sciences are matters that have generated vigorous debate (especially among philosophers of science) for a considerable period of time; some of the key issues will be outlined in the following section.

It must be acknowledged that in pondering the possible contents of this encyclopedia, the decision was taken to use *theory* both in the technical and in the broad ordinary-language senses. For to restrict coverage to theories in a narrower scientific sense would, no doubt, have engendered a comforting sense of rigor, but this would have been achieved at a great cost, namely, the exclusion of many items of intrinsic interest and of great educational significance. Many theories in the broad, nonscientific senses of the term clearly are worthy of inclusion in an encyclopedia; in common with theories in the technical or scientific sense, they serve as lenses that open up educational vistas that we might not have seen—or perhaps could not have seen—without their help. However, it also must be acknowledged that there are other theories (or hypotheses, assumptions, or guesses) that—because they simply reflect human biases, are less well formulated or

supported, or deal with the picayune or with social conditions that no longer exist—are candidates for noninclusion. But as pointed out earlier, there is no algorithm to determine decisions here, and human judgment is fallible.

Mercifully, however, a principle formulated by the publishers at the outset of work on this encyclopedia gave a modicum of guidance and certainly served as a stimulus: "*We aim to produce a reference resource on theories that have stood the test of time and those that have provided the historical foundation for the best of contemporary theory and practice.*" (In fact, this was emblazoned on a large card and placed in clear sight above the editor's desk for the duration of the project.)

It is also worth noting that as this is (in part) an encyclopedia of "theory" and not of "theorists," the policy has been adopted, wherever feasible, of identifying the theory in the title of an entry, rather than using the name of the relevant theorist (these latter can be located via the Index to the volumes). This was not quite as feasible as I had first anticipated, however, for many theories are in fact inseparably associated with the individual who played a key role in formulating them; in such cases, a judgment was made about which label was most commonly used. And names of individuals are more frequently used in the philosophical entries.

Some Issues Concerning Scientific Theories

The preceding discussion signaled that there is variation across the various branches of science with regard to the form that theories can take—a theory in ecology, or Darwin's theory of evolution, does not appear to have a close family resemblance to, say, Einstein's general theory of relativity or the kinetic theory of gases. For many decades, if not centuries, the canonical account of the structure of theories (what philosophers of science often have called "the received view") was based on an analysis of theories in the physical sciences such as the latter two just mentioned, and it is interesting to speculate what form the "received view" would have taken had Darwin's work been taken as the starting point for analysis. But, for better or worse, the account that dominated throughout most of the 20th century was that a mature scientific theory consisted of a number of interrelated propositions that precisely described mechanisms, "theoretical laws," or "theoretical principles" that lay "behind" or that served to explain the empirically derived facts or observed

regularities in the relevant domain. Furthermore, the theory could generate predictions about what would happen in this domain if the values of some variables were changed.

The concept of theory within the sciences was often broadened to cover two other elements: First, scientific theories often incorporated models, such as the familiar "billiard ball" model of molecules that accompanied the kinetic theory of gases (indeed there was a lively dispute about the nature of such models and about whether they were a necessary part of a theory); but whatever their status, by extension these were also often called theories. Second, the term also was stretched to refer to an overarching explanatory framework or paradigm or conceptual network that provided a way of thinking about a wide domain, and within which a number of specific theories are located (as in "Einsteinian physics," "cognitive psychology," and "behaviorism").

There can be little doubt that this tripartite "received view" of the nature of scientific theory, which in reality was an account of theory in the physical sciences, had a significant impact on the social and behavioral sciences and in education—but an impact that can now be seen to be largely detrimental. Rather sterile attempts were often made to ape the physical sciences; it was even common for scholars in the social and applied sciences, who resisted this importation of the "received view" into their domains, to quip that the social sciences and educational research suffered from "physics envy." But many others took a hard line and argued that these "softer" areas were theoretically extremely weak and even that they were to be regarded as "sciences" only as an academic courtesy. And indeed they were—and are—theoretically weak, if the kinetic theory of gases and Einstein's theory are taken as the benchmarks. Some decades ago, the respected philosopher D. J. O'Connor expressed this view in forthright prose that is worth quoting at some length:

> I tried to give an answer to the question "What is an educational theory?" My answer consisted, briefly, in sketching the standard senses of the term "theory" and showing that educational theories did not conform at all closely to these standard senses. I concluded that "the word 'theory' as it is used in educational contexts is generally a courtesy title." Naturally enough, this conclusion was not well received by all of those whose interests lie in these fields. It seemed to some critics to be, at best, unduly

restrictive and, at worst, wildly perverse to take scientific theories as a model for theories in general and for educational theories in particular. (O'Connor, 1973, p. 48)

But the situation now is not quite so bleak, for the "received view" is no longer so widely received even as an account of theories in the physical sciences, and in addition, theoretical work in the "soft" and applied social sciences has become the focus of attention on its own terms and is no longer approached with the presupposition that it needs to resemble physics in order to be respectable.

All this being said, the field of education certainly can yield examples of theories in one or other of the three senses encompassed by the "received view" discussed earlier—more "models" and "paradigms or frameworks" than "structured sets of propositions," perhaps—and these have, by and large, been included in the encyclopedia.

It would be unsatisfactory to break off discussion of the term *theory* at this point. One other important issue needs to be pursued.

Theories *in* Education, Theories *of* Education, and Educational Practice

The starting point here is that because theories in the scientific sense give an account of the "nuts and bolts" of nature (to use Jon Elster's expression), they can be used to guide our interventions in the world—a feature noted in the old adage that "there is nothing so practical as a good theory." Unfortunately, it turns out that the relation between theory and practice is far from being as simple and direct as this might suggest. No doubt there are some educationally relevant theories that, despite the efforts of their formulators, contain areas of vagueness or lack of specificity so that they can be interpreted in many ways, resulting in multiple incompatible lines of guidance. And of course many other theories are more specific or precise. Nevertheless, it is important to realize that in *all cases*, what a theory implies about practice is open to debate. The openness of the relationship that exists between theory and practice (even when the theories are rather precisely phrased ones in domains such as psychology, that often get applied to educational problems) was noted, memorably, by William James (1899/1958):

I say moreover that you make a great, a very great mistake, if you think that psychology, being the

science of the mind's laws, is something from which you can deduce definite programmes and schemes and methods of instruction for immediate schoolroom use. Psychology is a science, and teaching is an art; and sciences never generate arts directly out of themselves. An intermediary inventive mind must make the application, by using its originality. (pp. 23–24)

Part of the issue here is what philosophers call the "is–ought" problem. Scientific statements, or theories, are attempts to describe what *is* the case, or what mechanisms or regularities lie hidden behind observable phenomena (think of the kinetic theory of gases and Darwin's theory of evolution by natural selection, to cite two spectacular examples from the natural sciences, and Piaget's theory of cognitive development). Furthermore, although it is still the focus of lively debate, a widely held desideratum for theories across the natural and social sciences is that they be value free in the sense that they must not be biased in favor of the social, political, religious, or moral values of the individuals who developed them (see the entry "Value-Free Ideal for Research: Controversies"). Consequently, if we are thinking through what *ought* to be done in some applied science or educational setting, in light of a putatively value-free theory about what *is the case* (e.g., one of those mentioned above), we run into the problem that in general there is no simple, straightforward link that allows us to leap from what *is the case* to what *ought to be done*. For the situation is that various trains of argument can be constructed that lead from the very same *is* statement or theory to quite different conclusions about what *ought* to be done in practice; where we end up depends on what value premises and other material we use in constructing the argument that actually links theory and practice—and this was part of William James's point when he noted that to generate ideas about an art such as teaching from scientific statements, "an intermediary inventive mind" was required in order to make the link, and it follows that different "inventive minds" might make links that lead in different directions. All of us are familiar with this phenomenon in our everyday lives—consider, for example, that many individuals faced with a serious medical problem seek a "second opinion," on the grounds that oftentimes two experts in the very same field will give different advice about what action ought to be taken, even when they have been provided with the same empirical evidence pertinent to

the case. Many of the encyclopedia's entries take account of all this by pointing to some of the ways the relevant theory has influenced, or has been applied to, educational practice.

So far, the focus has been on what practical implications flow from the putatively value-free, scientific-type theories that are used *in education*; but it is crucial to recognize that not all carefully developed positions that count as theories in education are, or aspire to be, scientific in this sense, nor are they to be thought of as coming from outside of the field of education and as being applied to it. (I am putting aside, for the purposes of this discussion, theories in the broader, looser sense of hypotheses or guesses.) It is my impression that theorists and philosophers on the Continent have been readier to acknowledge these as genuine theories than their colleagues in the English-speaking world.

The entities that I am referring to here can be thought of as being theories *of education*, and often, they are not value free—which is no great surprise given that the enterprise of education itself is value oriented. It has been common for philosophers to note that people need to be educated because what they *are* is not what they *ought to be*. In other words, the whole field of education has a set of core values built into it; as is made clear in numerous entries in the encyclopedia, the development of autonomy and rationality is valued, as are moral development and civic participation and the acquisition of literacy; and teaching rather than indoctrination is prized as an educational process. Thus, these theories *of education*, as well as incorporating empirical findings and the like drawn from the social and behavioral sciences, also incorporate, are based on, or are warranted by value judgments (which sometimes are explicitly acknowledged and at other times are simply assumed). In a sense, such theories do not raise the issue of how statements about what *is* the case, and conclusions about what *ought* to be done, can be linked together—for the value/normative element is actually built *into* the theory itself, together with an explicit link to the course of practical action that is being recommended. This account of theories *of* education was powerfully defended by a leading analytical philosopher of education, Paul Hirst, who contested O'Connor's narrow account of "theory" by arguing that where "a practical activity like education is concerned, the place of the theory is totally different" from what it is in the natural sciences. "The function of the [educational] theory," Hirst (1966)

stated, "is to determine precisely what shall and shall not be done" (p. 40). Such a theory, he went on, necessarily draws

> on knowledge other than science; it must, for instance, draw on historical, philosophical and moral understanding as well. In particular whatever one may think of the truth claims of metaphysical beliefs and the form of justification of moral values, both these enter into the formation of educational principles and judgments. They cannot be ignored or wished out of the way. (p. 41)

Again, the issues that arise here will be pursued elsewhere in these volumes.

Modes of Philosophy

Usage of the term *philosophy* presents difficulties that parallel the ones faced in dealing with *theory*. (For deeper discussion of the following points, see the entry "Philosophy of Education," in the *Stanford Encyclopedia of Philosophy*; Phillips & Siegel, 2013). In the first place, there is a very loose usage according to which anyone who has thought deeply about a domain, or who has come to hold complex beliefs or strong biases about it (whether well founded or not), can be labeled as being a "philosopher." I have heard a professional football coach, who was noted for the innovative game plans he devised, called a "philosopher of the game"; and sometimes TV personalities who give lifestyle advice are called "real philosophers." (Such labeling is often, but not always, intended to be commendatory!) In this diffused sense of the word, there are innumerable "philosophers of education," for a great many individuals have thought relatively deeply about, or have strong and complex opinions or biases about, educational issues; parents, teachers and former teachers, school administrators, and politicians and candidates for political office are among the ranks of philosophers of education in this extended sense.

A second sense of the term—far more likely than the first to be represented in this encyclopedia—is what in other contexts I have labeled "cultured reflection on education." This category covers individuals such as the 16th-century essayist Michel de Montaigne—who had a strong interest in education and wrote in a reflective way about it but did not self-identify as a "philosopher." This category merges with another, which includes individuals

who are scientific researchers of one stripe or another, or cutting-edge practitioners, but who are nonphilosophers; sometimes, these folk step back from their research or field of practice to examine this field more broadly and, from this distance, to make insightful metacomments about it (about matters such as the adequacy of the theories that are dominant, the clarity of key concepts, the validity of research designs for putting hypotheses to the test, and the like). Einstein is a good case in point, but so is the behaviorist psychologist B. F. Skinner, as are the anthropologist Clifford Geertz and the psychologist Jerome Bruner. Making such metacomments about a field, however, has long been part of the role of philosophers—philosophers of science, for example, frequently engage in this type of work. So at the metalevel of reflection on a domain, the difference between a philosopher and a thoughtful researcher or practitioner in that domain becomes difficult to draw. Important work of this genre has found its way into the encyclopedia.

A fourth category of "philosophers of education"—one that often causes confusion—is made up of individuals who are rightly identified as philosophers (often they are among the most noted in the history of the discipline) and who have written about education but not in a particularly deep philosophical way. (Great philosophers do not always write philosophy!) The extraordinary 20th-century philosopher and logician Bertrand Russell, for example, wrote several rather feisty books about progressive education; these did not reflect his technical philosophical interests but rather were interesting reflections on the education that he and his then wife were providing in the small school they had established, and certainly, the generating of royalties was one of Russell's underlying motivations. Personally, I would also place the great empiricist philosopher John Locke's much-reprinted *Some Thoughts Concerning Education* in this category; it is a work that drew on his experiences as a man of the world, and its original form was a series of letters he wrote to a cousin giving sensible and rather down-to-earth advice about the education of her son, who evidently suffered from a learning disability.

Locke's case is particularly enlightening, for some of his technical philosophical writings—which did not mention education at all—were of profound educational significance. This, then, introduces a fifth category—works of technical philosophy that do not directly address education but that have turned out to have had great educational significance

and that have been a fruitful influence on numerous professional philosophers of education and others. Locke's philosophy, for example, influenced psychologists working on problems of learning for more than a century; no doubt Friedrich Hegel, Hans-Georg Gadamer, Ludwig Wittgenstein, and John Rawls also are important examples.

Finally, there is the technical sense of the term *philosophy*, the sense that covers writings in epistemology, moral philosophy, political philosophy, metaphysics, and so forth. Much (but not all) work that self-identifies as "philosophy of education" fits comfortably here, for these works tackle directly, and in a technically philosophical manner, educational issues that have an epistemological or moral or political philosophy dimension. The work of Richard Peters, Israel Scheffler, and Nel Noddings can serve as examples.

Using the Encyclopedia

The preceding discussion dealt with some of the issues that had to be faced as the content of the encyclopedia was being selected. But another host of issues arose in organizing this content and in making it easily accessible to the reader. One matter, of course, was deceptively simple: The entries are arranged alphabetically, and there is an alphabetically ordered list of them, as is the norm for encyclopedias. The "deception" arises—as a moment of reflection will reveal—in the matter of the wording of the title of each entry (the "headwords"), for, of course, it is these titles that are alphabetically arrayed. A clear majority of the entries—I did not keep accurate score as the issue became too vexing—were renamed several times as I struggled to find titles that would allow interested readers to locate relevant items readily, that would make sense in an alphabetical listing of contents, and that would be an accurate reflection of each particular entry's content. I am sure that I did not always succeed in this apparently simple task; but I draw consolation from the fact that items of interest can almost certainly be located by way of the index, which of course lists names of individuals who are mentioned in the entries even when these do not appear in the titles.

I will refrain from tugging on the reader's heartstrings further by recounting the difficulty I faced, together with members of the Editorial Board, in selecting the categories for the Reader's Guide (RG). Suffice it to say that the domains covered by the encyclopedia—theory and philosophy—made this task

very difficult; for, as many of us know, theorists and philosophers often—and quite rightly—insist that their work cannot be readily categorized, for it deliberately transcends boundaries that too often are artificial and restrictive. As a consequence, many of the entries could be placed under three or four RG categories, and several could be placed under more, which tended to make the RG categories large and unwieldy—and these are hardly appropriate desiderata for an RG, which after all should serve to guide the reader! Eventually, however, an RG emerged with sensible categories that I am hopeful will be useful to many readers; these categories are listed in the section below.

The Reader's Guide Categories

Aims of Education

Classic Premodern Philosophers, Theories, and Theorists

Curriculum

Educational Research, Evaluation, and Testing

Equity, Rights, Social Stratification, and Citizenship

Higher Education

Learners, Learning, and Teaching

Liberal Education

Moral, Religious, Spiritual, and Social/Cultural Values

Multiculturalism and Special Populations

Organization of Schooling

Philosophy of Education: The Analytic Tradition

Philosophy of Education: The Continental Traditions

Philosophy of Education: Feminist Perspectives

Philosophy of Education: Nonwestern Traditions

Philosophy of Education: The Political Theory Tradition

Philosophy of Education: The Pragmatic Tradition

Philosophy of Science, Sociology of Science, and Epistemology

Progressive Education

Psychological Orientation in Educational Theory

Social Sciences Orientation in Educational Theory

Acknowledgments

References

Hirst, P. H. (1966). Educational theory. In J. W. Tibble (Ed.), *The study of education* (pp. 29–58). London, England: Routledge & Kegan Paul.

James, W. (1958). *Talks to teachers on psychology; and to students on some of life's ideals*. New York, NY: W. W. Norton. (Original work published 1899)

O'Connor, D. J. (1973). The nature and scope of educational theory. In G. Langford & D. J. O'Connor (Eds.), *New essays in the philosophy of education* (pp. 36–50). London, England: Routledge & Kegan Paul.

Phillips, D. C., & Siegel, H. (2013). Philosophy of education. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*. Retrieved from http://plato .stanford.edu/archives/win2013/entries/education-philosophy

A

ABILITIES, MEASUREMENT OF

Human abilities measurement is the science of quantifying individuals' capabilities for performing cognitive tasks. *Cognitive tasks* range from abstract "IQ test"–like tasks, to the kinds of academic tasks routinely assigned in school (e.g., reading, writing, science, and mathematics), to those conducted in the workplace (e.g., accounting, forecasting, and decision making). *Capabilities* are what an individual can do in a best-case situation, when alert, well rested, and motivated, as opposed to what that individual might do routinely, which is captured in the often-cited distinction between maximal versus typical performance. The importance of motivation in human abilities measurement has been demonstrated in various incentives studies that show that fairly simple incentives, such as nominal pay or suggestions that test scores might be shared with potential employers, can have dramatic effects on cognitive test scores.

The fundamental idea underlying the premise of human abilities is that there is a small, core set of capabilities that govern how well an individual can perform an infinitely broad range of tasks. Although anecdotes about human abilities undoubtedly can be traced to the beginnings of history, Sir Francis Galton and particularly Charles Spearman are credited with the modern psychometric (i.e., psychological measurement) claim that performance on tasks can be well predicted by positing a general-ability factor, which Spearman called "g," along with task-specific factors, which he called "s." In his primary mental abilities model, Louis Leon Thurstone showed that a better prediction of task performance was obtained by positing several general factors, including verbal comprehension, spatial ability, numerical ability, word fluency, memory, perceptual speed, and inductive reasoning. A reconciliation of the approaches to ability in terms of general versus primary factors was proposed by John Carroll, who reanalyzed most of the data sets on ability tests in existence and found evidence for a hierarchical model of human abilities with a general-ability factor at the top, primary abilities similar to Thurstone's at the second stratum, and even more specific abilities at the third stratum. An issue in Carroll's formulation, and in the field in general, is whether it is more useful to posit a single general factor or whether, as Raymond Cattell and John Horn long argued, proposing two broad general factors—general fluid (gf) and general crystallized (gc)—is more appropriate. The justification for the two-factor view is based on both content differences (gf is measured by abstract tasks and gc by school-like tasks) and developmental trends: Whereas gf, reflecting general thinking capabilities, peaks in young adulthood, gc, reflecting the accumulation of knowledge, peaks relatively later in life, suggesting that gf is invested to yield gc returns. Reconciliation of the g versus gf–gc positions seems to have been accomplished by the proposal of the Catell-Horn-Carroll model of the structure of human abilities, which now appears to be the most widely accepted framework for the structure of human abilities; in particular, it is the foundation for many commercial intelligence test batteries used primarily by school psychologists.

A central topic in human abilities research concerns malleability—are human abilities relatively fixed at early ages, or do they grow and improve? Support for the rank stability view (the view that the ranking of individuals remains stable even as mean scores increase) comes from test–retest studies that show high correlations between test scores measured in elementary school and those measured in adulthood, even late adulthood, such as the Scotland Mental Survey studies and similar studies conducted in Italy, Denmark, and elsewhere. Additional support comes from studies of identical twins reared apart whose abilities test scores tend to be highly correlated, as shown in the Minnesota Twin Family Study, for example. On the other hand, studies show that schooling boosts IQ scores such that each year of school leads to an additional 2 to 4 IQ points. Also, the so-called Flynn effect shows that gf scores (but not gc scores) have been rising steadily by approximately 0.2 standard deviations per decade in developed countries and that the scores in less developed countries are growing even more rapidly. Finally, there are many indications that wealth and socioeconomic status moderate test scores, so that lower–socioeconomic status individuals and poorer nations present lower test scores in international comparative studies conducted by the Organisation for Economic Co-operation and Development, and that adopted individuals show test score boosts of approximately 1 standard deviation, perhaps partly because of the enriched environment due to factors such as more sophisticated everyday family talk.

Ability measurement methods have changed remarkably little since the pioneering studies of Alfred Binet and Theodore Simon, Lewis Terman, and Spearman, and the Army Alpha examinations in the early 20th century (but see the commentaries by Susan Embretson and the commentary by Robert J. Mislevy, Robert J. Sternberg, and others on speculations on the future of ability testing). However, there have been continued calls for measuring new constructs using new methods afforded by advances in technology. For example, there have been proposals for an information processing account of human abilities, the most significant suggestion being that working memory capacity might underlie gf, a claim still being evaluated. An outgrowth of that suggestion is the finding that training working memory might increase gf, but that claim is controversial. Sternberg has been an influential proponent of new-ability measurement, particularly in advocating for the importance of creativity and tacit knowledge. These ideas

have been put to the test in the development of new higher education admission tests at Tufts University, the University of Michigan, and elsewhere. Other new constructs include emotional intelligence and what have come to be known as 21st-century skills according to a recent report issued by the National Academy of Sciences and edited by James Pellegrino and Margaret Hilton. These include cognitive skills, interpersonal skills, and intrapersonal skills. In addition, there has been renewed interest in measuring response time as a part of ability measurement, situational judgment testing, and video-based testing, such as video situational judgment testing. However, perhaps the most significant development in human abilities measurement is the increased recognition of personality and its interplay with cognitive abilities. There now is a growing appreciation for the idea that schooling develops both cognitive and noncognitive skills and that the latter are more important than previously acknowledged, suggesting that measurement of noncognitive abilities is likely to receive increased attention in the coming decade.

Patrick C. Kyllonen

See also Cognitive Revolution and Information Processing Perspectives; Competence; Intelligence: History and Controversies

Further Readings

Carroll, J. (1993). *Human cognitive abilities*. New York, NY: Cambridge University Press.

Embretson, S. E. (2004). The second century of ability testing: Some predictions and speculations. *Measurement: Interdisciplinary Research and Perspectives, 2*(1), 1–32.

Flynn, J. (2012). *Are we getting smarter? Rising IQ in the twenty-first century*. Cambridge, England: Cambridge University Press.

Nisbett, R. E., Aronson, J., Blair, C., Dickens, W., Flynn, J., Halpern, D. F., & Turkheimer, E. (2012). Intelligence: New findings and theoretical developments. *American Psychologist, 67*(2), 130–159.

Organisation for Economic Co-operation and Development. (2010). *PISA 2009 results: Overcoming social background. Equity in learning opportunities and outcomes* (Vol. 2). Retrieved from http://dx.doi.org/10.1787/9789264091504-en

Pellegrino, J., & Hilton, M. (Eds.). (2012). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, DC: National Academies Press.

ACCOUNTABILITY AND STANDARDS-BASED REFORM

In a basic sense, accountability means nothing more than being responsible for one's actions and being willing to be answerable for them. In recent decades, however, the idea of accountability has become a central notion in new forms of governance in both the public and the private sector. This entry first examines the role of accountability in the governance and management of contemporary education, particularly in relation to standards-based educational reform—that is, the reform of education driven by setting and assessing standards of achievement. The entry then highlights some of the problems with the impact of accountability regimes on educational practice.

Accountability, Responsibility, and Management

That schools should be accountable is, in itself, a claim that few would wish to dispute. Yet there are three critical questions with regard to this:

1. To whom should schools be accountable?

2. For what should they be accountable?

3. And what form should such accountability take?

It is with regard to these questions that an important shift has taken place in recent decades as a result of the transformation of the idea of accountability from a relationship of mutual responsibility and trust into an instrument for the governance and management of organizations, including schools and the educational sector more generally. Key to this transformation has been the adoption of principles from financial accounting into a more general strategy of management and governance.

In the domain of finance, accountability has to do with the duty to present auditable accounts of the financial dealings of a business or organization, first and foremost in order to detect and deter incompetence and dishonesty in the handling of money. Accountability as a management and governance strategy works on the same principles—sometimes referred to as the idea of "management by numbers"—in that it requires data about the performance of all aspects of an organization to judge whether the organization is performing in the way it is expected to perform. Accountability as a management strategy, therefore, not only comes with a demand for total transparency but also tends to start from a position of distrust rather than trust. The burden of proof, in other words, lies with the organizations being held accountable in that they need to *prove* that they are performing according to the required standards rather than being trusted to perform to the standards. The managerial use of the idea of accountability fits well with a neoliberal approach to governing, where governments are less directly involved in the running of public services such as schools but, instead, govern such services through the specification of targets and standards that need to be met. In such a setup, regulatory bodies are tasked with the important role of assessing whether schools and other public services are indeed meeting their performance targets.

Standards-Based Educational Reform

The rise of the managerial approach to accountability has coincided with a particular approach to educational reform and educational improvement known as standards-based educational reform. The idea behind standards-based educational reform is relatively simple; it centers on setting specific standards of achievement that students need to attain. In this regard, one could even say that the idea behind standards-based educational reform is as old as education itself, as education is always done with some particular result in mind. One of the problems in the adoption of standards-based educational reform is that, over time, the specification of what it is that students need to achieve has become increasingly detailed and, more important, increasingly prescriptive. Consequently, the standards-based approach to educational governance and educational reform has significantly reduced not only the scope for schools and teachers to devise their own ideas about what their educational efforts should achieve but also their ability to tailor educational efforts to the needs of individual students. When standards are set for what students need to achieve by the end of a stage of schooling, such as primary or secondary school, schools and teachers still have an opportunity to devise different ways in which such standards can be achieved; however, when standards are set for each year, the progress students are expected to make is defined in minute detail, thus limiting opportunities for schools and teachers to make meaningful adjustments to the educational trajectories of individual students.

While standards-based reform in itself already intervenes quite significantly in the everyday practice of education, it does so to an even greater extent when it is combined with managerial approaches to accountability in which standards are the performance targets that students, as well as teachers and schools, must meet. The combination of the two thus provides a powerful mode of central control over education, which helps explain why it has become a popular approach in education policy in many countries around the world.

Problems

The combined impact of standards-based educational reform and a managerial approach to accountability has put considerable pressure on the educational system. The pressure is felt not only by students themselves but also by teachers and schools, particularly in situations where performance data—at the school level and sometimes even at the level of individual teachers—are made public. While this is often done in the name of transparency, more often than not it contributes to a culture of "naming and shaming" rather than the establishment of a culture of support for educational improvement. Perhaps the biggest problem of the combined rise of standards-based educational reform and a managerial approach to accountability has been the emergence of what in the literature is known as a culture of performativity, where *indicators* of performance become seen as *definitions* of performance, so that schools no longer aim to provide their students with a good and meaningful education but, instead, begin to focus on achieving the best possible position in comparative overviews of school or teacher performance. Because of this, and because of the more general pressure that the combined effect of standards and accountability puts on all actors in the educational system, there is a real question as to what extent these developments are contributing to the actual improvement of education.

Gert Biesta

See also High-Stakes Testing; Managerialism

Further Readings

Ball, S. J. (2003). The teacher's soul and the terrors of performativity. *Journal of Education Policy, 18*(2), 215–228.

Biesta, G. J. J. (2004). Education, accountability and the ethical demand: Can the democratic potential of accountability be regained? *Educational Theory, 54*(3), 233–250.

Gewirtz, S. (2002). *The managerial school.* New York, NY: Routledge.

Madaus, G. F., Russell, M., & Higgins, J. (2009). *The paradoxes of high stakes testing. How they affect students, their parents, teachers, principals, schools, and society.* Charlotte, NC: Information Age.

O'Neill, O. (2002). *A question of trust: The BBC Reith lectures 2002.* Cambridge, England: Cambridge University Press.

ACHIEVEMENT GAP

Virtually all countries try to meet two goals for the outcomes of their schools: getting high levels of student achievement while minimizing systematic gaps in performance. Dealing with these issues simultaneously frequently presents challenges and policy conundrums. The United States—the subject of this discussion—has felt the weight of these issues where the historic pressures of segregated education have been heightened by a steady influx of immigrants. Moreover, these problems intersect with residential location patterns so that many of the challenges are concentrated within a relatively small number of school districts. Dealing with goals related to the level and distribution of performance can seldom be accomplished by using a single policy; in fact, it requires multiple policies.

Most countries find that the performance of students varies systematically with a variety of characteristics. The largest concerns generally relate to family background, as defined by income, race, and ethnicity. The motivation behind these concerns is that schooling outcomes are known to relate closely to subsequent incomes and performance in the labor market. Thus, low achievement by children that is related to family incomes and ethnicity implies an intergenerational transmission of poverty. This entry summarizes the data on current gaps in achievement and examines the explanations that have been offered for these differences. It concludes by reviewing research on some key factors—racial segregation, teacher quality, and early childhood—that could potentially have a significant impact on existing gaps and by considering their policy relevance.

Existing Achievement Gaps

It is important to understand the magnitude of achievement gaps that exist. In the aggregate, the United States has seen some convergence over time in school attainment by race and ethnicity. For the population of ages 25 to 29, there have been increases in high school completion and convergence across subgroups over the past two decades. In 1980, 89% of White students completed high school, while only 77% of Blacks and 58% of Hispanics did so. By 2012, the differences in high school attainment had been cut in half, with completion rates of 95%, 89%, and 75% for Whites, Blacks, and Hispanics, respectively.

Yet the schooling statistics also show another distributional trend: Completion of college has significantly diverged between Whites and both Blacks and Hispanics. In 2012, 40% of Whites completed a bachelor's degree or more, while only 23% of Blacks and 15% of Hispanics reached this level. The diverging completion trends are particularly important given the rapid rise in return to college over the past two decades. With the growth in the value of higher education, this differential rise in college attendance is not altogether surprising given the divergence of preparation for college.

But perhaps more important are the gaps in measured achievement of students. The United States has tracked the performance of students over time with the National Assessment of Educational Performance. This assessment has consistently traced performance at different ages and in different subjects since the early 1970s. The best comparisons are at age 17, just before students either enter the labor market or continue on to college.

The gaps in achievement are truly stunning. While there has been some historic closure, particularly in the 1980s, the current differences are enormous. The Black–White gap in math in 2011, for example, places the average Black at the 19th percentile of the White distribution. The Hispanic–White gap places the average Hispanic at the 26th percentile of the White distribution.

Explanations of Achievement Gaps

Enormous amounts of research have gone into understanding what causes these gaps. One of the first efforts to understand racial differences in achievement was the Coleman Report, an official government report issued in 1966 in response to the Civil Rights Act of 1964. The Coleman Report, officially titled *Equality of Educational Opportunity*, was widely interpreted as concluding that families were the most important influence on student achievement, followed by each student's school peers; schools had little influence on achievement. However, that analysis has been heavily criticized for a variety of analytical reasons. Overwhelmingly important for the purposes here, however, is that it did not have good measures of differences either in school quality or family backgrounds. Indeed, subsequent attempts to sort out the impacts of families, schools, and peers have foundered on similar problems.

We do know that common measures of school quality—spending or other characteristics—are not closely related to achievement. On the other hand, variations in teacher effectiveness are important, reinforcing the general presumption that schools have a strong impact on students. It is just that the classic input measures of teacher quality are not very useful.

In reality, given our current knowledge, it is simply not possible to measure the relative importance of the various underlying causes for the existing gaps. We know that student achievement is strongly related to family background, but little attention has been given to how family background should be measured if one is looking for the causal structure. It is clear that we would like to eliminate the racial and ethnic gaps in achievement, both because of equity goals and because of the impact of unfulfilled human capital possibilities. But looking at policies to do so is not the same as knowing the causes of the existing gaps.

Racial Segregation in U.S. Schools

Over a long period of time, the United States has wrestled with problems related to racial segregation. Before the 1954 ruling of the U.S. Supreme Court in *Brown v. Board of Education*, a number of southern states had de jure segregation of schools, or segregation established by law. The Court ruled that this led to an inherently unequal system of education and called for desegregation of schools. This ruling led to a long series of actions, sometimes related to further Court decisions, that moved toward breaking up past racial concentrations. The movement away from de jure segregated schools was balanced by de facto segregation of schools outside the South, where racial concentrations were the result not of legal restrictions but of residential patterns coupled with school assignment policies.

The research most directly related to questions of how racial concentration relates to achievement gaps focuses on whether peer racial composition, as opposed to desegregation actions per se, affects achievement of Blacks as well as other demographic groups. While this has been a difficult issue to research, the available evidence suggests that Black achievement is harmed by having schools with higher concentrations of Black students. (Current evidence does not indicate similar impacts for Hispanic students.)

Nonetheless, because racial segregation in schools largely results from separation in residential location across jurisdictional lines, there are few legal or policy recourses that would lead to lessened racial concentrations. In part this is the case because, since the 1970s, the courts have taken an increasingly narrow view of actions toward reducing school segregation. In particular, consideration of inter-district remedies was increasingly ruled out by the Supreme Court. Perhaps the final limitation came in 2007, when the Court even struck down voluntary race-conscious plans operated within individual districts in cases involving Seattle, Washington, and Louisville, Kentucky.

Teacher Quality

Perhaps the strongest and most consistent finding of recent research is the importance of teacher quality. The early work on teacher quality focused on measurable characteristics and background factors of teachers, such as experience or type of training. The analysis of teacher effectiveness has largely turned away from attempts to identify specific characteristics of teachers. Instead, attention has focused directly on the relationship between teachers and student outcomes. This outcome-based perspective, now commonly called value-added analysis, takes the perspective that a good teacher is simply one who consistently gets higher achievement from students (after allowing for other sources of student achievement, e.g., family influences or prior teachers).

In a series of studies since 2000, outcome-based estimates find substantial variation in teacher contributions to achievement, supporting the interpretation that the earlier work simply had poor measures of teacher quality. For example, available results imply that having a teacher at the 75th percentile as compared with the 25th percentile of the quality distribution would move a student at the middle of the achievement distribution to the 58th percentile (in one academic year). The magnitude of such an effect is large relative to the typical measures of Black–White or Hispanic–White achievement gaps described previously.

While there is little evidence that teacher quality varies systematically with student characteristics (race, ethnicity, or income), the results suggest that improving the quality of teachers for disadvantaged groups could close substantial parts of the existing achievement gaps.

Early-Childhood Education

A recent focus of policy discussions is preschool education. There are three arguments for why broad provision of preschool education is a good idea. First, the problems of disadvantaged children at entry to school have received increased attention, particularly with the availability of new longitudinal data for early childhood. The deficits in preparation of disadvantaged children are significant. For example, evaluations of the vocabulary of disadvantaged children find that they have been exposed to dramatically less vocabulary—more advantaged children at age three had vocabularies that were four times as large as disadvantaged three-year-olds. Moreover, the quality of parent–child communication was vastly different. These differences in preparation have potentially lasting effects on student outcomes.

Second, a variety of conceptual arguments for early investments in human capital—most notably by Nobel laureate James Heckman and his colleagues—have received scholarly and policy attention. They suggest that investments made early in life enhance learning later in school and even into careers.

Third, key studies with strong research designs have supported the efficacy of preschool education. The most well-known is the Perry Preschool Program, but others, such as the Abecedarian Program and the Early Training Program, also provide important evidence.

For these reasons, it is natural that discussions of preschool enter into the education policy debate and into judicial proceedings and judgments. There are reasons to be favorably disposed to instituting expanded preschool programs for disadvantaged students. The idea has been to supplement what goes on in the home in order to provide stronger educational development. Such preschool investments recognize that it is easier to remediate earlier rather

than later. At the same time, the limited number of models that have been evaluated provides uncertain guidance about the design of effective programs, particularly programs that reach male children.

Some Conclusions

Achievement gaps, particularly by race and ethnicity, have been large and persistent in the United States. The continued existence of these gaps is incompatible with widely held views of equity for society, because they indicate a persistence in economic disadvantages.

Correcting these problems, however, has proven difficult. First, there is genuine uncertainty about governmental policies that will systematically raise student achievement. Second, policy goals invariably include raising achievement of all students in addition to closing achievement gaps. If closing gaps meant simply redistributing good schools from the more advantaged to the less advantaged, there would be obvious political conflicts and there would be a conflict with goals to increase all achievement.

One policy that would potentially improve minority achievement, particularly of Black students, without harming White students would involve lessening the concentrations of Black students in segregated schools. The range of potential policies is nonetheless very limited because there is little ability to move students across jurisdictional lines, where most of the segregation exists.

Improving teacher quality, particularly for minority students, is one policy that holds promise. The best way to do this remains somewhat uncertain, although there are many ongoing potential policy initiatives that might solve this. The largest problem is that teacher effectiveness is not closely related to common measures used to assess teacher quality, such as experience or graduate training. Thus, it is difficult to regulate better teachers, and moving toward improvements demands being able to evaluate teacher effectiveness directly. This remains a topic of much current debate and research.

Finally, a particularly attractive policy is providing improved early-childhood education for disadvantaged students. Because education in the home and through other early experiences currently favors more advantaged students, better preschool experiences of disadvantaged students would act to equalize early opportunities. This would tend to improve their preparation for school and to close achievement gaps without harming the more advantaged students. The policy issues in this realm relate to finding the best way to provide and pay for this early-childhood education.

Eric A. Hanushek

See also Coleman Report; Equality of Educational Opportunity; Ethnicity and Race; Human Capital Theory and Education; Quality of Education

Further Readings

Fuller, B. (2007). *Standardized childhood: The political and cultural struggle over early education.* Stanford, CA: Stanford University Press.

Hanushek, E. A. (2001, May). Black-white achievement differences and governmental interventions. *American Economic Review, 91*(2), 24–28.

Hanushek, E. A., & Rivkin, S. G. (2012). The distribution of teacher quality and implications for policy. *Annual Review of Economics, 4,* 7.1–7.27.

Heckman, J. J. (2006, June). Skill formation and the economics of investing in disadvantaged children. *Science, 312*(5782), 1900–1902.

Rivkin, S. G., & Welch, F. (2006). Has school desegregation improved academic and economic outcomes for blacks? In E. A. Hanushek & F. Welch (Eds.), *Handbook of the economics of education* (pp. 1019–1049). Amsterdam, Netherlands: North-Holland.

Witte, J. F. (2007). A proposal for state, income-targeted, preschool vouchers. *Peabody Journal of Education, 82*(4), 617–644.

Website

National Assessment of Educational Performance Data Explorer: http://nces.ed.gov/nationsreportcard/

ACHIEVEMENT MOTIVATION

Motivation is a psychological construct that explains the nature, strength, and persistence of behaviors. *Achievement motivation* concerns motivation in contexts in which performance standards apply and outcomes can be judged as successes or failures. Typical contexts include schools, athletic fields, the workplace, the stage, and even social situations. Success and failure may be defined variably, for example, as meeting a personal goal, achieving recognition or a reward, or winning a competition. Success for a pianist might be measured in the length of applause, for a hostess in the amount of food the guests

consume, for a student in the grade on a test, and for a surgeon in whether a patient survives.

Theoretical Frameworks

Theories of motivation have been generated to help explain, predict, and influence behavior. Those that focus on achievement vary in their assumptions about whether the source of motivation is in the individual or in the environment, how malleable it is, how it is measured and how it is influenced.

In the 1950s and 1960s, David McClelland pioneered the field of achievement motivation, stipulating that, as a consequence of parenting in early childhood (e.g., supporting autonomy, encouraging achievement striving), individuals develop a stable disposition or trait, which he referred to as "need for achievement" (nAch). Individuals high in nAch possess a strong motive for success and seek challenges. Low nAch is associated with selecting very easy tasks (to minimize the risk of failure) or very difficult ones (to avoid embarrassment from failure). His conceptualization of achievement motivation shared with psychoanalytic theory the notion that motivation is not conscious and therefore needs to be assessed with projective tests.

In stark contrast, behaviorists who became prominent in the early 1960s conceptualized all motivation entirely in terms of observable behavior and explained all behavior in terms of previous reinforcement contingencies—what Edward Thorndike referred to as the "law of effect." According to this theory, individuals exhibit a particular behavior in achievement or any other setting because they have been reinforced (rewarded) for that behavior in the past. Accordingly, students who are rewarded (e.g., with good grades or praise) for working hard on school tasks and for persisting when they face difficulty will continue to work hard and persist in the future.

Reinforcement theory was originally derived from drive theories, which assumed that reinforcement necessarily involved the reduction of basic biological needs (e.g., hunger and thirst). A parent's praise, for example, might have taken on reinforcement properties by having previously been associated with food and the reduction of hunger. Difficulties in explaining the effectiveness of a wide range of outcomes that appeared to influence behavior led theorists to drop drive reduction as a factor. Reinforcement theorists today make no claims about particular qualities of reinforcements. Any consequence of a behavior that increases the likelihood of its future recurrence is, by definition, reinforcing, and any consequence that reduces the likelihood of its recurrence is punishment.

Behaviorism is considered mechanistic because it is not concerned with beliefs, feelings, aspirations, or any other psychological variable that cannot be directly observed. The theory has clear implications for how motivation is conceptualized and measured. Motivation is not considered a quality of the person but, rather, is conceptualized as a set of behaviors and their contingencies. Any attempt to influence motivation would involve rewarding desirable behavior and punishing or ignoring undesirable behavior.

Many achievement motivation theorists find such mechanistic assumptions about behavior unsatisfactory and, instead, have explored psychological variables that are not directly observable. Cognitive motivation theorists do not rule out external reinforcement as a cause of achievement behavior. They claim, however, that cognitions (beliefs) such as expectations mediate the effect of rewards. In addition to personal histories of rewards and punishment, beliefs are based on many factors, such as observations of the consequences for others when they behave in a particular way or, even simply, what they are told about what they can expect. When teachers call attention to the consequences of students' behavior ("Table 3 can go to recess because everyone is sitting quietly") and when they promise rewards ("If you finish all your work before recess, I'll let you play on the big kids' yard"), they are using cognitive motivation theory. They are attempting to influence behavior by affecting expectations about the consequences of desired behaviors.

Cognitive motivation theorists focus on a variety of beliefs related to achievement behavior. Self-efficacy theory focuses on expectations for success. Self-worth theorists study the ways in which individuals' beliefs about their competence in performance domains affect their behavior. Locus of control theorists have demonstrated the role of perceptions of control over outcomes. If a performer believes that the judges are biased against him, for example, he might believe that success is not really within his control and, therefore, not exert much effort. Attribution theorists fine-tuned locus of control theory by differentiating among specific controllable and uncontrollable causes of outcomes (e.g., luck, ability, effort, help, etc.) and examining the effects on behavior of particular causal attributions.

Beliefs about achievement are malleable, and because beliefs are to some degree situational, cognitive motivation theorists sometimes measure them in specific situations (Do you expect to succeed on this math test?) or domains (Are you athletic?). Cognitive theorists design interventions that are aimed at changing maladaptive beliefs, for example, by trying to convince individuals that they can, in fact, succeed if they exert effort.

John Atkinson introduced values into achievement motivation theory. According to his expectancy x value theory, exerting effort and persisting on a task require more than expecting to be able to complete it; the task must also have some value attached to it. Atkinson conceptualized value narrowly in terms of pride in success. Other theorists have considered values more broadly, such as in terms of how important achievement in a particular domain is to one's self-concept and how useful particular kinds of achievement are perceived to be. Researchers working from an "expectancy x value" theoretical framework, therefore, measure students' perceptions of the value of success or other rewards in efforts to predict or change behavior. Attribution theorists, mentioned above, also assume the importance of pride in achievement-related behavior, finding that attributions for success and failure affect pride and other emotional reactions differently, and the emotional reactions, in turn, affect subsequent behavior. For example, success attributed to personal effort produces pride that promotes future effort, whereas success attributed to luck yields surprise rather than pride, which may not promote future efforts.

Intrinsic motivation theorists are also concerned with emotional as well as cognitive aspects of motivation. Intrinsic motivation theory is based on the assumption that humans are inherently motivated to develop their intellectual and other competencies and that they take pleasure in their accomplishments. Part of the value of achievement striving is the intrinsic pleasure one experiences from achieving higher levels of mastery or understanding. Intrinsic motivation is typically measured by observing people's voluntary activities. Thus, to assess students' intrinsic motivation to read, researchers might find out how much they read on their own, when there are no external consequences. Or they might give them several activities to choose from and observe whether they do one involving reading. In interventions designed to increase intrinsic motivation, the context or the task is changed in ways that are known to foster human beings' intrinsic motivation, such as ensuring that the task is challenging but not too difficult and providing some choice.

Self-determination theorists add two basic needs—to feel self-determining (having some control over one's behavior) and to feel socially connected—to the need to feel competent, which is central to intrinsic motivation theory. According to this theory, people do not function effectively in any achievement context that fails to meet any of these three needs. Self-determination theorists thus study the conditions that support individuals' feelings of competence, control and social connectedness, and design interventions that create those conditions.

Recently, goal theorists have pointed out that people engage in the same behavior for different reasons and that the reason for engaging in a task is just as important as the level of effort, degree of persistence, or any other observable behavior. For example, the goals of learning, mastering, or understanding (referred to as "mastery goals") have been found to promote intrinsic motivation and challenge seeking better than the goals of achieving extrinsic rewards or recognition ("performance goals"). According to goal theorists, interventions designed to change maladaptive behaviors and increase learning require changing goals.

In summary, achievement motivation theories are based on different assumptions about factors that affect behavior in achievement-related contexts. They are not, however, mutually exclusive. It is highly likely that parenting in early childhood affects individuals' general disposition to be achievement striving, that all individuals take some natural pleasure in a feeling of mastery or competence, and that beliefs about the likelihood of effort leading to success affect effort on tasks, and so on. Together extant theories of achievement motivation suggest that behavior is affected by both the setting (e.g., reward contingencies, support for autonomy), as well as by both malleable (e.g., expectancies for success) and more stable (need for achievement) factors internal to the individual.

Deborah Stipek

See also Behaviorism; Learning, Theories of; Motivation

Further Readings

Stipek, D. (2002). *Motivation to learn: Integrating theory and practice* (4th ed.). Needham Heights, MA: Allyn & Bacon.

Weiner, B. (1992). *Human motivation: Metaphors, theories, and research*. Thousand Oaks, CA: Sage.

ACTIVITY THEORY

Activity theory (AT) focuses on how culture and history shape individual consciousness and the organization of collective activity. Its roots lie in Marxist philosophy and the Soviet psychology of the 20th century. Like Marxist philosophy, AT foregrounds the role of material, goal-directed activity in shaping human consciousness. The core ideas of AT trace their origins to the writings of Lev Vygotsky and his followers in the early 20th century, including A. N. Leont'iev, Alexander Luria, Vassily Davydov, S. L. Rubinstein, and P. I. Zinchenko. Current AT focuses on the importance of accounting for multiple and interacting activity systems and partially shared objects.

Relevance to Educational Theory and Philosophy

AT arose as a critique of two widely circulating theories in Russian and early Soviet psychology—behaviorism and introspectionism. Vygotsky criticized behaviorism for focusing only on what animal and human behavior have in common, rather than what distinguishes them. He argued that psychological theories should explain instead how voluntary functions, such as attention, memory, and problem solving, arise. He posited that human beings employed cultural and historical tools to direct control over behavioral processes and to organize activity. Such control and organization are evident whenever people carry out joint action.

Vygotsky also criticized introspectionism, the idea that understandings of human mental functioning should be derived from introspection. He argued that psychologists should not analyze thinking apart from human activity, since these activities play a central role in individual development. Vygotsky argued that before a process appeared on the "psychological plane," it first had to appear on the "social plane," in collective activity. He termed this the *genetic law of cultural development*. A distinguishing feature of the Vygotskian framework is the centrality of culture and cultural mediation understood as a uniquely human environment imbued with artifacts and practices of previous generations and changed by their use in goal-directed human activity.

AT's significance arises not only from its critiques of psychology but also from its concern with *praxis*, or practical human activity to transform the world. Vygotsky and his collaborators engaged in clinical and educational endeavors directed at improving the conditions of young children, children with disabilities, and adults who had suffered from brain injury. More recently, scholars have used AT to organize and analyze educational settings in schools, informal learning environments, and workplaces; to reveal and analyze the cognitive demands of work often judged to require limited knowledge; to design sociotechnical systems; to study knowledge production and change in organizations and in processes of professional development; and to guide radical forms of psychotherapy. Recent scholarship has also extended the use of AT as a framework for analyzing and organizing social change. It has been an especially useful framework for scholars studying how to draw on cultural, racial, or linguistic differences as resources for teaching and learning. In particular, this emphasis on conceptualizing diversity as a resource has helped generate new models of educational intervention that build on repertoires of practice within nondominant communities to open new possibilities for activity.

Core Constructs of AT

The foundational idea that individuals develop in relation to the systems of activity that constitute an individual's life forms the basis of the constructs that animate AT.

Analysis of Levels of Activity

In contrast to theories of learning and development that presume that activities are static while individuals change, AT posits that systems of activity are also changing. This led Leont'iev (1978) to argue that activity must be analyzed at multiple levels, which he characterized as the levels of activity, action, and operation. In this scheme, activities are collectively organized and can be characterized in terms of their motives. Actions are an intermediate level, analyzed in terms of the objects of individuals, and operations are a means toward accomplishing goals. Many operations become unconscious or automatic through repetition.

Subsequent theorists have offered related, but distinct, formulations of the concept of levels of activity. Yrjö Engeström's (1987) theory of learning by expanding, for example, proposed a method

of analysis of activity in terms of tools or artifacts, rules, and division of labor. Learning by expanding focuses attention on development as a concerted, collective effort to transform activities in ways that expand possibilities for action by analyzing contradictions or tensions within and across activity systems. Engeström and colleagues have developed these ideas through formative interventions in the form of change laboratories where participants, local practices, dialogue, and participants' interpretations matter. In these change laboratories, dialogue and sustained relationships set the foundation for the generation of novel solutions, problem solving, and transformation. Change laboratories have been used to facilitate improvements to hospital care and public services in Scandinavia.

Within developmental psychology, Barbara Rogoff (1995) proposed an analysis of development in three "planes": (1) the individual or psychological, (2) the interpersonal or group, and (3) the community levels. Consistent with earlier AT formulations, Rogoff's theory posits that development entails the ongoing, mutual constitution of development across these planes, separated out only for analytical purposes to privilege an understanding of particular human activity. Accordingly, people inherit and make use of practices invented by others and then change those practices in participation.

Mediation

The focus on goal-oriented action within AT gave rise to inquiry into the means for accomplishing action. Vygotsky (1987) referred to "psychological tools" as means linked to the higher mental functions of directing attention, constructing memories, and solving problems. These tools encompass all manner of signs and systems for creating and transforming meaning: language, gesture, systems for counting, mnemonic devices, mathematical symbol systems, diagrams, maps, drawings, and so forth. The introduction of such tools into the flow of activity both facilitates and transforms object-oriented activity.

For activity theorists, the capacity of human beings to use such objects to regulate the self is an important function of psychological tools. These include the use of tools to aid not only in problem solving but also in remembering events and focusing one's attention. A person can draw on other kinds of tools, such as projections of a future self engaged in particular kinds of activity (as in *prolepsis*), to construct identities (Cole, 1996).

Genetic Method

AT emphasizes the *process* of development. A key aim of analysis is to trace the genesis of particular psychological processes within activity. In AT, relations among persons, activities, and tools are not considered at just one moment in time; rather, their development over short and long time spans is examined. Cultural–historical analysis within AT encompasses the history of the species (phylogeny), the cultural history of social groups, the history of experience of each person (ontogenesis), and microhistory of events that are in the immediate context of a person's life (microgenesis). In contrast to some images of development in psychological theory, experiences of development over time are understood to entail dynamic processes full of upheavals, sudden changes, reversals, boundary crossing, even destruction and breaking away from activities.

One approach to studying how tools mediate activity is the method of double stimulation (Vygotsky, 1978). An investigator using this method presents a person (e.g., a child) with a stimulus or problem to solve that is hypothesized to be outside his or her capabilities to solve. The investigator observes how this person approaches the problem and then presents to the person a tool meant to aid in problem solving. The introduction of tools to aid in problem solving can construct what Vygotsky called a *zone of proximal development*, "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (p. 86).

Criticism and Challenges to AT

One critique of AT pertains to the idea of goal-directed action. Lucy Suchman (2007) has pointed out that objects and plans do not always precede or control activity; in fact, reasons and purposes are often retrospective constructions rather than guides to activity (see also Lave, 1988). These theorists argue that goals or purposes are better understood as resources in activity—akin to other kinds of artifacts and psychological tools—rather than something special that precedes action. Others point out that much action is habitual rather than consciously goal directed.

Another critique relates to the monism of traditional Marxist conceptions of activity, that is, that reality constitutes a singular whole. Some scholars

from within the tradition of cultural–historical AT emphasize the hybridity and heterogeneity of cultural tools within activity as key resources for learning by expanding. Some also emphasize the variation within and across cultural repertoires for participating in activity as sources of heterogeneity in activity. Drawing especially on the work of Mikhail Bakhtin (1981), these theorists describe *multivoicedness*—the tension among different voices and perspectives on activity—as generative of change and expanded possibilities for action. Actor–network theorists critique monism in AT, because it fails to provide a means for analyzing heterogeneous actors in complex networks. Actor–network theory posits that the social and material are symmetrical forces within human activity, brought together into assemblies or networks of linked people, artifacts, and practices (Latour, 2005).

At present, a key challenge for AT is interdisciplinarity. The study of activity necessarily draws on perspectives from anthropology, sociology, history, economics, and other human sciences. Yet it is most well developed at present within the fields of psychology and human–computer interaction. Historically informed accounts of activity are largely absent, which is a problem given the centrality of history to AT. As the study of activity expands to encompass more disciplinary perspectives and methods, scholars within AT argue that a challenge will be for AT to remain a coherent framework for analyzing activity rather than an eclectic grouping of multiple theories.

William R. Penuel, Kris D. Gutiérrez,
A. Susan Jurow, Ben Kirshner, Kevin O'Connor,
and Joseph L. Polman

See also Actor–Network Theory: Bruno Latour; Marx, Karl; Vygotsky, Lev

Further Readings

Bakhtin, M. M. (1981). *The dialogic imagination: Four essays* (C. Emerson & M. Holquist, Trans.). Austin: University of Texas Press.

Cole, M. (1996). *Cultural psychology: A once and future discipline.* Cambridge, MA: Harvard University Press.

Engeström, Y. (1987). *Learning by expanding: An activity theoretical approach to developmental research.* Helsinki, Finland: Orienta-Konsultit.

Griffin, P., & Cole, M. (1984). Current activity for the future: The Zo-ped. *New Directions for Child and Adolescent Development, 1984*(23), 45–64.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network theory.* New York, NY: Oxford University Press.

Lave, J. (1988). *Cognition in practice.* New York, NY: Cambridge University Press.

Leont'iev, A. N. (1978). *Activity, consciousness, and personality.* Englewood Cliffs, NJ: Prentice Hall.

Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In J. V. Wertsch, P. del Rio, & A. Alvarez (Eds.), *Sociocultural studies of mind* (pp. 139–164). Cambridge, England: Cambridge University Press.

Suchman, L. (2007). *Human-machine configurations: Plans and situated actions* (2nd ed.). New York, NY: Cambridge University Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press. (Original work published 1934)

Vygotsky, L. S. (1987). *Thought and language* (A. Kozulin, Trans.). Cambridge, England: Cambridge University Press.

Vygotsky, L. S. (1999). Consciousness as a problem in the psychology of behavior. In N. Veresov (Ed.), *Undiscovered Vygotsky: Etudes on the pre-history of cultural-historical psychology* (pp. 251–281). New York, NY: Peter Lang. (Original work published 1925)

Wood, D., Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry, 17*(2), 89–100.

ACTOR–NETWORK THEORY: BRUNO LATOUR

Actor–network theory (ANT) is an approach that attempts to capture the complexity of the social world by tracking the relations among human and nonhuman actors (which might be other living things, objects such as machines, or ideas); it examines how scientific knowledge arises through the interactions between scientists and researchers and the social and the natural contexts on which they act. It is most closely associated with the French thinker Bruno Latour. It has its roots in the sociological study of science, but in taking in other objects of study (including politics, law, technology, and religion), it has developed into a philosophical enquiry into our "modes of existence" that poses considerable metaphysical challenges to conventional accounts of our world.

From one perspective, Latour's project is one of alternative historicization. He does not seek to understand science in terms of a conventional heroic narrative, one that is teleologically directed in the sense that, armed with prior knowledge of the outcome, it recounts how this successful discovery of transcendent truth came about; rather, he builds up a detailed description of how scientists operate as they go along, facing challenges and choices and, in the absence of a route map, not knowing what obstacles or dead ends will confront them. In trying to understand science in action, one needs to observe scientists at work in the sites in which their knowledge is produced. For Latour and his collaborator Steve Woolgar, this was a neuroendocrinology laboratory in California, but the object of study might be fieldwork in the Amazon forests or, historically, Louis Pasteur's part in the discovery of microbes.

Science in action arises out of controversies (Does the Higgs boson exist?), and ANT seeks to describe the process whereby these matters of concern are (or are not) transformed into matters of fact. ANT is as interested in failure as it is in success. The laboratory gathers scientists and the equipment they have built to run their experiments, but it is full of pieces of paper as well—grant applications that keep the project funded, scientific journals bearing on matters of concern, diagrams, protocol books, photographs, and so on, all of which must be acknowledged as playing their inextricable part in the process of generating facts. In particular, Latour and Woolgar draw attention to "inscription devices," equipment devised for experiments that records experimental data and thus transforms the behavior of matter into written documents. Realist accounts of science tend to elide this representational element and the considerable work it does in both generating and sustaining those facts and to assume an unmediated insight into reality itself. For Latour, what we take to be real is the effect of those representations, and our sense of what we call "reality" changes as new representations are developed. Thus, Latour does not start from the position that the objects we study are stable and taken for granted; rather, he seeks to understand the processes by which they become stabilized, at least *relatively* stabilized, to the extent that they can be taken for granted.

Influenced by ethnomethodology, one important principle of ANT is the requirement to respect the metaphysics of the actors involved in what you are studying. Scientists are not the only actors in this process; crucially, and controversially, what Latour calls "non-humans" are actors as well and are granted agency. Anything that modifies a state of affairs, that makes a difference, is an actor. The failure of a piece of equipment or the puzzling appearance of an unexpected phenomenon in a photograph can make scientists do something; conversely, scientists can devise equipment (e.g., the large hadron collider) that makes pieces of matter do something that renders them visible to their inscription devices and also, as a consequence, real. This is not to endow nonhumans with consciousness or intentionality; for Latour, "make do" expresses the range of metaphysical shades that can exist between full causality and sheer inexistence. A second principle is that of symmetry: In advance of the enquiry, the investigator must not make assumptions that endow one type of actor with ontological privilege at the expense of another in respect of size (the very small may turn out to be more powerful in its effects than the very large), materiality, its status as human or nonhuman, and so on.

In not privileging the human over the nonhuman, ANT challenges the conventional distinction between subject and object. The laboratory is just one site where humans and nonhumans are gathered together in a context-specific web of associations and their identities are significantly fused—hence the en-dash (–) in actor–network theory. Pasteur developed procedures that rendered visible the agency (and existence) of microbes, but in an important sense, microbes play a part in the network (what Latour called in the title of one of his books *The Pasteurization of France*) that makes the Pasteur we are familiar with, and though long dead, Pasteur remains an actor in the health regimes engineered to control their effects that are still in place. An actor–network is made to exist by these attachments, and the more attachments it has—and the more resistant these alliances are to hostile scrutiny—the more powerful it is. Against the Cartesian definition of the ego ("I think, therefore I am"), Latour offers "I am what I am attached to." However, an actor–network is only as good as its weakest attachment, and that is what makes the difference between success and failure, between Pasteur and his rivals.

It is in this network of mediations that the scientific fact emerges as painstakingly *constructed*: etymologically, facts are "things made." This claim led to many attacks on Latour and his associates in the so-called science wars, to which Latour was happy to respond (often with a playful sense of humor

lost on his opponents), though they did lead him to be critical of the sociologistic emphasis of his early work. In explaining science, you cannot reduce it to the social—to do so is at the expense of taking the social and its key terms (e.g., power) for granted. For ANT, no thing can be reduced to some other thing in this way, for to do so is at the price of taking that other thing as simple and unproblematic—a notion that ANT asks you to challenge on principle (the theory takes on its specific identity from whatever actor–network it is attached to). Things (including ANT) do not exist "in themselves" as isolated quasi-atomic individual entities beyond analysis (Latour likes to appeal to the Germanic etymology of the word *thing* as an assembly that is to decide a disputed matter). Every "thing" is always already an aggregate that is significantly modified when brought into an association with something else that acts as a mediator and effects what Latour terms a *translation*. Explore the social and the scientific together under ANT, and both will be transformed. Rather than the distinctive "objectivity" of science being taken for granted, it is that very objectivity that is to be explained. Scientific facts are indeed constructed in the local circumstances of the laboratory, but if the network that generates them is robust in all its associations, those facts can be transported to any time and any place and so can claim to be *universal*. Latour uses the metaphor of the "black box" for such a fact: Like a computer or a television, if it does what it is supposed to do, you do not feel the need to open it up and find out just how complex its components and their interactions are. The so-called social sciences in their own right may aspire to the black boxes of the sciences and the stabilization they represent, but though sociology would like the social to be one, from the perspective of ANT, the social cannot be used as a cause to explain anything. Rather, the social is the consequence of the attachments, the hybrid network of associations of humans and nonhumans, ANT would trace. For ANT, the social sciences get it the wrong way round, taking for granted the very "thing" that is their task to explain—how associations are formed.

Nonetheless, condensed hybrid aggregates, "collectives" such as society or nature, operate powerfully on humans. A collective provides a shared definition of a common world, and such collectives underpin disciplines. Latour (2005) says of disciplines that "each has chosen to deploy some sort of mediator and favored some type of stabilization, thus populating the world with different types of well-drilled and fully formatted inhabitants" (p. 258). This leads to his theory of modes of existence. There is not one world out there but a plurality of worlds (politics, law, religion, science, the economy, etc.)—multiple regimes of truth operated in accordance with distinctive types of reason that present to us multiple modes of existence we inhabit. None of these is reducible to any other, though strenuous attempts to do so are made. In particular, modernity is characterized by its attempts to "purify" the hybrid collectives—society and nature. From the perspective of ANT, this cannot be done, and the project of modernity never got off the ground in the first place. This is not to make us postmodern: Rather, in the title of another of Latour's books, *We Have Never Been Modern.*

How does ANT relate to educational theory? In his dialogue *Meno*, Plato uses a set of exchanges about geometry between Socrates and a slave to suggest that there is no such thing as learning, only a remembering of knowledge that was always already there in our immortal souls before birth. However, for ANT, geometric deduction is not hardwired into our brains, but it is a historical construct involving the development of technologies of representation (the lettered diagram) through which Greek mathematicians could devise compelling proofs by tracking exact equivalences through successive stages of argument (see Netz, 1999). So while Pythagoras's theorem is the historical product of a particular time and place, other people can learn how to use the diagrams and techniques the Greek mathematicians developed, so that the proof can be demonstrated any time and at any place and is, theoretically, a universal fact. For ANT, like all forms of knowledge, these are *transferable* skills, skills that can be "carried across" time and space—but only as long as the networks of transmission that carry the techniques associated with the proof (schools, curricula, etc.) are not broken.

Duncan F. Kennedy

See also Edinburgh School of Sociology of Knowledge; Radical Constructivism: Ernst Von Glasersfeld; Social Constructionism

Further Readings

Harman, G. (2009). *Prince of networks: Bruno Latour and metaphysics*. Melbourne, Victoria, Australia: re.press.

Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.

Latour, B. (1988). *The pasteurization of France*. Cambridge, MA: Harvard University Press.

Latour, B. (1993). *We have never been modern*. Cambridge, MA: Harvard University Press.

Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford, England: Oxford University Press.

Latour, B. (2013). *An inquiry into modes of existence: An anthropology of the moderns*. Cambridge, MA: Harvard University Press.

Latour, B., & Woolgar, S. (1979). *Laboratory life: The construction of scientific facts*. Princeton, NJ: Princeton University Press.

Netz, R. (1999). *The shaping of deduction in Greek mathematics: A study in cognitive history*. Cambridge, England: Cambridge University Press.

Addams, Jane

Jane Addams (1860–1935) is best known for her contribution to the practice of social work in the United States; her efforts at Hull House (part of the Settlement Housemovement) have become famous, and she was given international recognition when she was awarded the Nobel Peace Prize in 1931. However, it is important to understand her social work as part and parcel of her pragmatist educational and social theorizing. Working alongside—and thinking together with—a group of educated women activists (e.g., Frances Kelley and Charlotte Perkins Gilman), as well as with the scholars of the Chicago School (e.g., John Dewey and George Herbert Mead), Addams was a pragmatist feminist whose commitment to plurality without antagonism was the centerpiece of educating (both adults and children) for democracy and freedom, and whose innovative understanding of ethics as utterly social was a springboard for social progress. These themes are explored in this entry.

That Addams's work is legitimately philosophical has been established in recent decades by a host of scholars who recognize the innovative quality of her ideas as well as the impact she had on her pragmatist contemporaries. It is important to note as well that she was recognized as a philosopher (as well as an activist) in her own time. Contemporaneous reviews of her *Democracy and Social Ethics* suggest that Addams's writings were interpreted philosophically. Furthermore, we know that Dewey spent significant time analyzing that work in his 1902 course on sociology of ethics and, in 1932, quoted Addams in his own final statement of *Ethics*. There he noted that Addams's formulation of a social ethics as a springboard for social progress had been groundbreaking. What bound Addams and the later Dewey was the insight that ethics is not an abstract field rooted in social ideas but in life lived in social interaction.

Given that Addams was a philosopher, she was one of a very specific kind emerging in her time and place: a pragmatist feminist. A pragmatist sooner than Dewey, living in and through the first wave of feminism, Addams wrote in an idiom that brought careful, experience-based analysis to bear on immediate social issues from poverty to immigration, to child labor, and to war and peace. While some of her writings are titled to betray their philosophical intent (e.g., *Democracy and Social Ethics*), many are not (e.g., *The First Twenty Years at Hull House*). But all of her work instantiates philosophy as an embodied, emplaced activity.

Inhabiting a female body in an age that constrained female bodies physically, medically, and culturally prompted Addams's feminist wrestling with the contributions to the social good that are possible in the face of such constraints. Over time and travel to Europe and back again, across psychological terrains of depression and immobility, with a dual recognition of both her (class and educational) privilege and her (gender) oppression, Addams developed, in her Rockford Academy commencement speech, the insight that women can and should be "bread givers," or people who provided emotional, physical, and spiritual nourishment to others. In thought and action foreshadowing aspects of Nel Noddings's *Caring* and Sara Ruddick's *Maternal Thinking*, she articulated and valued without apology a woman's perspective—without insisting that it be essentialized or limited to gender categories. Her category of "sympathetic knowledge," involving the reciprocal exchange of ideas, relies on reason without denying feeling, on relation without obliterating personal responsibility, and on contextuality without sidestepping the value of knowing.

Addams's pragmatism emerged in response to a progressive zeitgeist that located meaning in the consequences of action. What Charles Peirce and

William James could identify as the justification of meaning by results in action, Addams would enact and expand. As noted, she came to her full pragmatist concept of democracy, ethics, and education early, unconstrained by the history of philosophical conversation (specifically Hegelian idealism) that delayed Dewey's understanding of ethics as rooted in social experience. She resolved the apparent dichotomy between philanthropic giving and receiving in "The Subjective Necessity for Social Settlements," locating the philanthropic impulse in democratic living, in the sense of looking out for one another, and in the insistence that those who would be affected by any decision must be part of the decision-making process.

In *Democracy and Social Ethics*, Addams characterized democracy as a rule of living as well as a test of faith. When Dewey later described democracy as a mode of associated living, it is difficult not to hear echoes of Addams. Addams champions "lateral progress" as social gains achieved in reciprocal communication and held in common; this is the marker of democratic society. Her formulation represents not mere equality, nor political franchise, but something far more complex.

For Addams, education was both a means to achieve common ends and an end in itself. Through the reciprocal exchange of ideas among differing individuals—cast as play for children, as meaningful work and shared discussion for adults—cooperative intelligence is achieved. Democracy, as a way of living and as a mode of political value and organization, finds fertile ground here.

Both Addams's feminism and her pragmatism can be characterized as critical because she lived diversity as she thought about it. She recognized the play of privilege as a feature and function of diversity and employed that recognition to frame challenges to taken-for-granted power structures. Addams's Nobel Prize–winning pacifism was one such challenge and so was Hull House. Viewed as a philosophical design experiment rooted in the constructive possibilities of pluralism, Hull House served to demonstrate the possibilities for living democracy, effecting education, and "revivifying" the social life of Chicago at the turn of the 20th century. Addams's work at Hull House and her philosophic and social writings can be understood as mirror images working out these elements in both thought and action.

Barbara S. Stengel

See also Citizenship and Civic Education; Dewey, John; Feminist Ethics; James, William; Mead, George Herbert; Noddings, Nel; Peace Education

Further Readings

Fischer, M., Nackenoff, C., & Chmielewski, W. (Eds.). (2009). *Jane Addams and the practice of democracy.* Urbana: University of Illinois Press.

Hamington, M. (2009). *The social philosophy of Jane Addams.* Urbana: University of Illinois Press.

Lagemann, E. C. (Ed.). (1994). *Jane Addams: On education.* New Brunswick, NJ: Transaction.

Seigfried, C. (1996). *Pragmatism and feminism: Reweaving the social fabric.* Chicago, IL: University of Chicago Press.

Stengel, B. (2007). Dewey's pragmatic poet: Reconstructing Jane Addams' philosophical impact. *Education and Culture, 23*(2), 29–39.

ADLER, MORTIMER, AND THE PAIDEIA PROGRAM

Mortimer Adler, professor, philosopher, and educational theorist, was born in New York City in 1902. He left school at age 14 to write for newspapers and initially enrolled in Columbia University to improve his writing. Because he never passed the swimming test, he never earned a baccalaureate degree, but he did eventually earn a PhD from Columbia University where he studied with John Dewey. Adler eventually repudiated Dewey's faith in progress and in science, positing instead the argument that while human situations may change, human problems remain the same. For education, then, we should look to the ancients and to philosophy rather than to fashion and science.

It is not surprising, then, that "Mortimer Adler" and "great books" are often considered synonymous categories. Adler believed that the classics are the foundation of a good education for all people because they *pass down* the "great ideas." Reading the great books develops ethical, socially responsible citizens who have in the great ideas the basic tools for living a good life. While Adler defines the three main objectives of education as (1) preparation for earning a living, (2) learning to be a good citizen of the republic, and (3) leading a morally good life, it is clear that he thinks the latter two purposes take precedence over the first because they lead to human happiness. Since learning to be a good citizen and

learning how to lead a morally good life (and in fact actually doing so) are attainable through reading the classics, that mode of study should be primary and universal.

The Paideia Program (from *paidos*, Greek for "raising a child") was based on an educational reform proposal from Adler and a group of like-minded scientists, educators, and business leaders intended to promote the reading and study of the great books. The program was based on the following tenets:

- All children are educable.
- Education is a lifelong activity.
- The primary cause of learning is the activity of the child's mind, which is assisted by the teacher.
- Multiple types of learning and teaching, including coaching and extended discussion, should augment lecturing.
- Preparing to earn a living is not the primary objective of education.

In many ways, the program was a "back to basics" reform proposal, with reading, writing, and arithmetic at the heart of it. It was also a self-consciously democratic and egalitarian proposal. In the words of Adler (1998), "equality of educational opportunity" is not

> taking all the children into the public schools for the same number of hours, days, and years. If once there they are divided into the sheep and the goats, into those destined solely for toil and those destined for economic and political leadership and for a quality of life to which all should have access, then the democratic purpose has been undermined by an inadequate system of public schooling. (p. 5)

Given his argument for a universal great books education, it is somewhat ironic that Adler's name and the Paideia Program have been associated with elitist approaches to education. There are three apparent reasons for the recurrent charges of elitism. The first is that great books curricula have usually taken root and flourished only at wealthy, private institutions such as Columbia, The University of Chicago, and Stanford—which abandoned its required freshman great books curriculum in the late 1980s but maintains an optional program (known as SLE, for "structured liberal education"), as does Yale ("directed studies")—or at renowned, equally wealthy, liberal arts colleges. (Exceptions that arguably prove the rule are honors programs at state universities, like the Honors College at the University of Houston, that require a Paideia-like curriculum for all majors.)

The second source of suspicion of elitism derives from a constellation of practical and populist notions about the vocational purpose of education, some of the more sophisticated of which derive from Adler's old foe John Dewey. Adler does not help his cause with such critics when he argues that the ancients regarded the training for particular jobs as the training of slaves. In Adler's view, the ancients, always his authority on matters of education, saw the pursuit of happiness as the universal human vocation and the primary, if not the sole, purpose of education.

Finally, programs inspired or supported by Adler have faced charges of bias and elitism. In 1986, these charges flared during debates at Stanford University, when students and faculty challenged a freshman requirement and its "core list" of 15 works, from Homer and the Hebrew Bible to Marx, Darwin, and Freud. The controversy culminated in 1989 with Stanford replacing "Western Culture" with a multicultural course titled "Culture, Institutions, and Values," or CIV. More directly and personally, charges of racism and sexism hounded Adler then and continue to this day—for his sometimes strident opposition to the inclusion of works by non-Western and non-European writers as well as works by women and persons of color and for his unwavering advocacy of the so-called canon consisting almost exclusively of "dead White males." Champions of multiculturalism at Stanford and elsewhere included Black student organizations, feminist groups, and others on the cultural left who argued that a curriculum like Adler's could not be relevant to the contemporary world in which students lived. The lack of "balance" in the curriculum was proof that there must be a bias beneath the egalitarian surface of the Paideia Program. Adler countered that great books, as opposed to good books, are not relevant for one moment or locale but for all time and that they provide an essential grounding for everyone—a common culture necessary for a functional democracy.

With multicultural critics of content on one side and populist critics of purpose on another, Adler's great books curriculum faced opposition on both the left and the right. During the 1980s and 1990s, the reputation of Adler's unifying and democratizing intentions were tarnished when critics lumped him with E. D. Hirsch, who helped fan the culture wars with his call for a "national culture," and Allan Bloom and William Bennett, both of whom Adler

considered elitist. More recently, Nel Noddings developed a nuanced alternative to Adler's program, which she calls a "Whitmanesque" curriculum, for poet Walt Whitman. Adler's insistence on a one-track system of education ignores real differences in talent and interest, Noddings claims, thus alienating and humiliating students who are not engaged by a Paideia-like program of study. She advocates a broader, less bookish, understanding of intellectual work, one that includes those who cook and those who repair as well as those who speak and write. Summarizing, then, critics of Adler object to the impractical, nonvocational nature of his program, the rigidity of its application to all children, and the preponderance of Western, White, and male writers in his great books canon.

Respecting the last and best known of these objections, great books programs are now often modified to include "alternative voices": works by women, persons of color, and non-Western/non-European authors. At almost every institution influenced by Adler, his 54 great books and the 102 great ideas he indexed in the *Synopticon* have been expanded and modified, and educators are generally less sanguine about the universality and sufficiency of their approach. Yet Adler's central insight still underlies much of what is identified as "core" or general education in schools, colleges, and universities. If they cannot agree on a list of titles, many, if not most, educators do believe in classic, universally valuable books and perennial ideas that are relevant to human problems in all times and situations. The implicit, if not explicit, assumption is that some ideas endure and broadly influence individuals and societies, and some books, let us call them "great," reward and sustain when read with attention and care.

William Monroe

See also Cultural Literacy and Core Knowledge/Skills; Dewey, John; Essentialism, Perennialism, and the "Isms" Approach; Multiculturalism; Noddings, Nel; Paideia; Vocational Education

Further Readings

Adler, M. (1997). *Aristotle for everybody: Difficult thought made easy.* New York, NY: Touchstone. (Original work published 1978)

Adler, M. (1998). *The Paideia proposal: An educational manifesto.* New York, NY: Touchstone. (Original work published 1982)

Adler, M. (2000). *How to think about the great ideas: From the great books of Western civilization.* Peru, IL: Open Court.

Adler, M., & Van Doren, C. (1972). *How to read a book.* New York, NY: Touchstone. (Original work published 1940)

Bloom, A. (1987). *The closing of the American mind.* New York, NY: Simon & Schuster.

Hirsch, E. D., Jr. (1988). *Cultural literacy: What every American needs to know.* New York, NY: Vintage Books.

Noddings, N. (2012). *Philosophy of education* (3rd ed.). Boulder, CO: Westview Press.

ADOLESCENT DEVELOPMENT

Adolescence typically refers to the period of life between the onset of puberty and adulthood. G. Stanley Hall (1844–1924) is usually credited with initiating scholarly interest in this developmental stage, which he viewed as a period of storm and stress (*Sturm und Drang*). For many theorists, adolescence represents a critical phase of human development as it does cover a period of demonstrable change, and many individuals have claimed that key aspects of their own thought and attitudes have taken root during adolescence. However, as Allan Wigfield, James Byrnes, and Jacquelynne Eccles (2006) have stressed, "Adolescence is very much a cultural phenomenon and the experiences adolescents have vary greatly across different cultures" (p. 88). This entry focuses on contributions to four main areas of adolescent development as studied in North American and Western contexts: (1) physical changes, (2) cognitive development, (3) social development, and (4) environmental changes that occur during adolescence.

Physical Changes

Puberty is the developmental process that is, perhaps, most closely associated with adolescence. Adolescence is often thought of as a period of storm and stress. Although these years are marked by substantial biological change, most scholarly work has determined that this "raging-hormones" view of adolescence is overstated. A key issue regarding puberty with respect to education is the timing of its onset. On average, the onset of puberty is about 18 months earlier for girls (usually starting around the age of 10 to 11 and lasting until they are 15 to 17)

than for boys (who usually begin puberty at about the age of 11 to 12 and complete it by the age of 16 to 17, on average).

The prevailing school of thought has been that better outcomes result for girls who hit puberty later and for boys who hit puberty earlier. As boys and girls hit their growth spurts, early-developing boys may stand out as suddenly looking more like the cultural ideal of the strong, tall, broad-shouldered man. They may also reap advantages from their size in athletic domains. In contrast, girls who hit puberty early may be embarrassed by their larger size (which runs counter to the cultural ideal). Furthermore, their physical development may open doorways to older peer groups and expose them to a riskier array of activities.

However, recent research has found exceptions to these trends. One emerging line of thinking is that while the physical changes may cause minor problems for some students, the real issue for educators arises when students face multiple transitions simultaneously. For example, a girl who begins puberty ahead of most of her peers as she transitions to a new middle school with new teachers and new peers may face multiple risk factors.

Cognitive Development

Within the domain of cognitive development, Jean Piaget's views have been particularly influential. Although less explicitly developmental, information processing views and Lev Vygotsky's social learning approach have offered prominent and competing views of how cognitive development may progress during adolescence.

Jean Piaget

In Piaget's view, cognitive development takes place through four distinct phases. He described (1) from birth through age 2 as the *sensorimotor period*, (2) from 2 to 7 years of age as the *preoperational period*, (3) from 7 through 11 years of age as *concrete operations*, and (4) from 11 years into adulthood as the *formal operations* period. For adolescents, what makes formal operations a qualitatively distinct way of thinking is the capacity for abstract thought. Specifically, in this view, what emerges during adolescence is a capacity (a) to think systematically (e.g., by isolating variables); (b) to entertain hypothetical presuppositions, counterfactuals, or alternatives; and (c) to make logical deductions. For example, a problem such as the following would require formal operations: Dennis is taller than Denise but shorter than Phillip. Phillip is shorter than Phyllis. Who is taller, Dennis or Phyllis?

Critique of Piaget's theory—specifically his work regarding formal operations—has come from three main sources. One line of questioning has raised the issue of whether changes in task performance that occur for youth transitioning into adolescence can actually be attributed to changes in logical thinking. A second line asks whether these changes really occur in stagelike fashion. Finally, questions about the universality of this stage have been raised—in other words, do all (or only some) late adolescents achieve formal operations and do they do so for all domains? Much of the evidence marshaled in support of these critiques has shown that, with proper training, much younger students can perform tasks requiring formal operations. Conversely, for novel domains, many late adolescents fail to successfully complete these types of tasks.

Information Processing

According to the information processing model, learners are like computers. Key functions of learners (and computers) are to receive and encode information from the environment, which must then be stored, organized, and remembered (as files must be saved). To use the information, people must recall it from memory (in the same way that old files may be reopened). These processes are controlled by executive functions—that is, *metacognitive skills*, such as attention regulation and rehearsal of information, and *elaboration* processes in which connections are made between pieces of information.

For the most part, scholars who adopt this general view of cognitive development see adolescence as a continuation of normal development. In other words, for adolescents, cognitive development occurs in much the same way as it does for younger students and adults. These scholars tend to find that development occurs differently in different domains—adolescents with substantial knowledge or experience in a domain may be able to perform much more sophisticated cognitive tasks than adolescents with little prior knowledge in the domain.

Lev Vygotsky

Although Vygotsky's theory of cognitive development does not focus on adolescents explicitly, several key ideas are regarded as especially important during this developmental phase. Vygotsky posited

that a primary learning pathway occurs between people—specifically between relative novices within a domain (e.g., children) and more experienced learners (e.g., parents or teachers). By working with more advanced others within a given domain, a relative novice can progress within a *zone of proximal development*. This zone represents the gap between what the learner can do alone and what he or she can do with assistance from a more experienced partner. In ongoing learning relationships, the more experienced partner provides *scaffolding* to help the novice with challenging tasks. As proficiency develops on those tasks, the scaffolding is removed so that the novice performs the task with increasing amounts of independence. During adolescence, improved meta-cognitive capacities allow youths to better able to plan, monitor, and evaluate their learning. Thus, it becomes increasingly viable for adolescents to scaffold one another's learning and help advance each other's zone of proximal development rather than relying on adults.

Synthesis

Although burgeoning empirical evidence casts doubt on certain aspects of Piaget's theory, adolescents may appear to take a leap forward in their cognitive development because the combination of their increasing cognitive capacity (in terms of memory and abstract thinking) and executive functioning capabilities allows them to devote greater cognitive resources to problem solving in domains where they have background knowledge. In domains where adolescents are less experienced and less knowledgeable, they may require more scaffolding from more experienced others. Findings from neuroscientific examinations of cognitive development provide some support for this possibility—adolescents experience important changes in brain structure and neurotransmitter levels that help enhance their executive functioning.

Social Development

During adolescence, people begin to develop their own identities and work out who they are in relation to others. The key researchers in this area include Erik Erikson, James Marcia, and David Elkind.

Identity Development: Erik Erikson and James Marcia

One of the hallmark tasks of adolescence is that of identity development. According to Erikson's stage theory, a core issue for adolescents to work out is that of *identity versus role confusion*. In other words, adolescents should strive to begin to define themselves in terms of their values, vocational interests, political and religious views, and so on through the exploration of the "Who am I?" question.

Marcia extended Erikson's theory by positing four outcomes to explorations of this question. An adolescent in *foreclosure* status has insufficiently explored this question and, instead, usually adopts the views of parents or friends without questioning them in a meaningful way. Adolescents experiencing *identity diffusion*, by contrast, have begun exploring the "Who am I?" question; they simply have not reached many conclusions. *Moratorium* describes the status of adolescents who are deeply engaged in the exploration of their identity, though whatever conclusions they may have reached at this point are likely tentative. Adolescents in *identity achievement* have typically undergone more thorough explorations of who they are and have made decisions about several aspects of their identity.

Social Cognition: David Elkind

Perhaps because of the view that they are undergoing a period of self-exploration, adolescents have garnered a reputation for egocentrism. Elkind proposed two metaphors to describe the ways in which adolescents become particularly susceptible to egocentric thought. Through the creation of an *imaginary audience*, adolescents think that others are thinking about and paying more attention to them than is actually occurring in reality. A particular consequence of this belief is the increased concern over appearance. By developing a *personal fable*, adolescents begin seeing themselves as special and unique. Believing too strongly in a personal fable can cause problems for an adolescent if it leads to feelings of invincibility or to feeling that nobody else can relate to him or her.

Although intuitively compelling, these metaphors—and the generalization that there is a peak in egocentrism during adolescence—have been questioned on several fronts. Most problematic for Elkind's theory is the view that adolescence is the time when youth develop the capacity to take the perspective of others in a sophisticated way.

Relationships

Two trends mark the progression of relationships during adolescence. First, adolescents tend to seek increased amounts of autonomy from their parents

during this phase. Second, they typically invest more time and emotional energy in their peer friendships. In other words, as adolescence progresses, individuals seek more of their relational and belongingness needs through their friends and often rely less and less on their parents for intimacy needs and emotional support. Although the existence of these trends is widely agreed on, a contentious debate has emerged surrounding Judith Rich Harris's assertion that peers are a vastly more influential factor than parents with regard to youth outcomes. To the extent that her contention is correct, there are dramatic implications for parenting, schooling, and youth development more broadly.

Synthesis

In exploring their own identities, two tools might become particularly important for adolescents— (1) their relationships with others and (2) their capacity to think about themselves with respect to those relationships. A particularly useful approach to exploring the "Who am I?" question is through ascertaining what one values. Youth can explore different values by "trying on" different sets of beliefs and behaviors in the context of different peer groups or cliques. Through these types of interactions and concurrent discussions with friends, students can more easily explore different identities than they can with their parents (who presumably lack the diversity of identities or points of view a large peer group can provide). Thus, parents may perceive their adolescent children as egocentric in their behavior; however, their children may simply be more motivated to take the perspective of their peers than their parents. To facilitate the exploration of their identities, they may be particularly motivated to understand what their peers think about themselves.

Changes in Schooling and School Contexts

As adolescents are experiencing these physical, cognitive, and social changes, they are also frequently faced with a dramatic change in context. As students transition from elementary school to secondary school, they frequently confront a new approach to schooling in a starkly different context. Secondary school students tend to move between different teachers for different subjects rather than having a single teacher instruct them in most areas; they are introduced to a new, larger peer group; and the nature of the instruction in their classes often differs from elementary school.

This change in environment is associated with a significant drop across a constellation of motivation-related outcomes (e.g., adolescents' sense of confidence, levels of intrinsic interest, positive feelings toward school, etc.). In addition, academic achievement typically suffers. Although these drops in achievement and motivation are most severe at the transition from elementary to secondary school, declines tend to continue as students advance through the grades.

Stage–Environment Fit

A prominent theory that has been introduced to explain how adolescents cope with these changes and transitions is that of the stage–environment fit (attributed to Eccles). According to this view, part of the reason that adolescents are at risk for negative consequences is that they experience a mismatch between their developmental needs and the opportunities that they receive in their secondary school environments. For example, these early adolescents are increasingly seeking autonomy, may need increased support from teachers to the extent that they are relying less on their parents, and require novel cognitive challenges. Yet their school environments frequently provide them with more controlling teachers and classroom contexts, teachers who feel less competent and whom they only see for short amounts of time each day, and coursework that may be less complex than the tasks they received in elementary school.

An important note is that this theory rose to prominence at a time when most students transitioned from elementary schools to junior highs (usually containing seventh through ninth grades). At present, middle schools (usually containing sixth through eighth grades and attempting to provide a more personalized experience) and primary schools appear more prominent. Thus, the empirical support for this theory needs to be revisited in light of these changes.

Hunter Gehlbach

See also Cognitive Revolution and Information Processing Perspectives; Metacognition; Motivation; Piaget, Jean; School and Classroom Climate; Social Constructionism; Vygotsky, Lev

Further Readings

Eccles, J. S., Midgley, C., Wigfield, A., Buchanan, C. M., Reuman, D., Flanagan, C., & Mac Iver, D. J. (1993). Development during adolescence: The impact of

stage-environment fit on young adolescents' experiences in schools and in families. *American Psychologist, 48*(2), 90–101.

Elkind, D. (1974). *Children and adolescents; interpretive essays on Jean Piaget* (2nd ed.). New York, NY: Oxford University Press.

Erikson, E. H. (1968). *Identity, youth, and crisis* (1st ed.). New York, NY: W. W. Norton.

Harris, J. R. (2009). *The nurture assumption: Why children turn out the way they do* (Rev. ed.). New York, NY: Free Press.

Inhelder, B., & Piaget, J. (1958). *The growth of logical thinking from childhood to adolescence.* New York, NY: Basic Books.

Marcia, J. E. (2002). Identity and psychosocial development in adulthood. *Identity: An International Journal of Theory and Research, 2*(1), 7–28.

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Wigfield, A., Byrnes, J. F., & Eccles, J. (2006). Development during early and middle adolescence. In P. Alexander & P. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 87–114). Mahwah, NJ: Lawrence Erlbaum.

Advance Organizers

In the psychological study of learning, the 1960s marked a shift from behavioral models grounded in stimulus–response associations toward cognitive models derived from the notion that organization and structure were key features of human memory and learning (Mayer & Wittrock, 1996). Behaviorists emphasized the reinforcement of specific, small "steps" that cumulated to form large, complex achievements. Learning hierarchies as described by Gagne (1965) divided large tasks into subtasks, introducing the concept of structural strategies; subtasks were generally larger than stimulus–response associations, and considerable attention was given to the division into subtasks. At about the same time, David Ausubel introduced the concept of *advance organizers* (AO; Ausubel, 1960, 1968, 2000; Ausubel & Fitzgerald, 1961; Ausubel & Youssef, 1963). Ausubel focused on *meaningful verbal learning*, the comprehension of meaningful passages of 2,000+ words—material that was much too large to handle as small steps and much more complex than hierarchies. To assist readers' comprehension, Ausubel proposed including a brief preview—a few sentences or a paragraph—that captured the essential elements in the target material and relations among them, thus providing a structural framework that would facilitate learning, promote long-term retention, and provide a basis for transfer. Initial findings by Ausubel and others found positive effects from the AO strategy, but Barnes and Clausen (1975) wrote a lengthy review concluding that "advance organizers, as presently constructed, do not facilitate learning" (p. 651). Mayer (1979) responded by pointing out flaws in the Barnes-Clausen review and reporting a series of nine studies that clarified the conditions under which AOs were effective. This entry details the types of AOs that can be used with students and discusses how and when instructional designers might consider using them.

During the half century since Ausubel's 1960 article, structural learning has become a dominant paradigm in educational psychology. While research on AOs has diminished, Ausubel's ideas have persisted under titles such as *schemata* (Anderson, Spiro, & Montague, 1977), *semantic organizers* (Dinnell & Glover, 1985), and *text structure* (Chambliss & Calfee, 1998). The AO story illustrates how an apparently simple idea can set in motion a cavalcade of activities, extending and clarifying the original notions and advancing the field as a whole—even though the original labels and names may grow faint with time. The next section illustrates the AO concept and describes advances in comprehension springing from this concept that have emerged from subsequent critiques and debates.

The passage on *kinds of muscle cells* in Figure 1 will be used to illustrate the AO concept. The materials, shown in the left-hand panel, include a section from a high school biology text and a figure. This passage, though shorter than those in AO studies (200 words vs. 3,000 words), is both complex and difficult and serves to demonstrate the basic principles of the AO strategy.

How might a learner study this material in preparation for an examination? How might an instructional designer assist the learner in this task? One approach is based on rote memory, which might work for a small amount of material. The passage consists of about 500 separate propositions, each of which would have to be committed to memory through practice. The student also has to learn new and unfamiliar vocabulary items, which are listed for study: *contract*, *relax*, and *tendon*, along with *voluntary*, *smooth*, and *cardiac muscle* (*lactic acid* might be added to the list). Even for a short passage,

Three kinds of muscle cells make up the more than 600 muscles in your body. Each kind performs a different job, and as you see, each appears different through a microscope. Despite the differences, all muscle cells contract, making themselves longer. When not contracting, they relax, returning to their original length. The simple motion of contraction causes every movement in your body

Skeletal muscles make your skeleton move. You use these muscles when you run, lift, or write. Skeletal muscles are voluntary, because you can choose when to contract them.

Bundles of **smooth muscle** are in your internal organs, like your stomach. Smooth muscles are involuntary, because you do not decide when to contract them. They perform slow, steady contractions. They help move food through your digestive tract and control blood pressure.

Your heart is made up of **cardiac muscles.** They contract very strongly and regularly, and rarely tire. Each cardiac cell has its own built-in rhythm. Cardiac muscles, like smooth muscles, are involuntary.

After vigorous exercise, muscles tire and ache due to the build-up of lactic acid, which is a by-product of muscle activity.
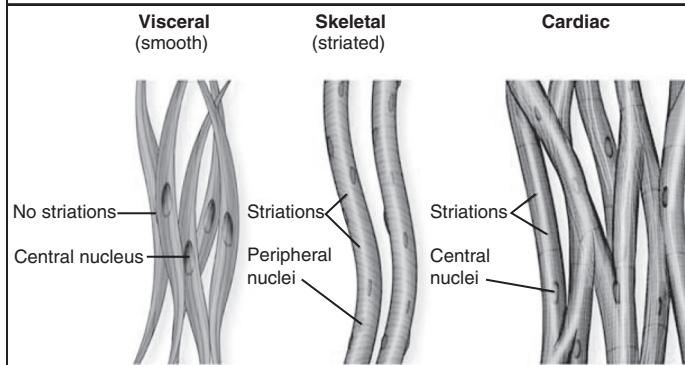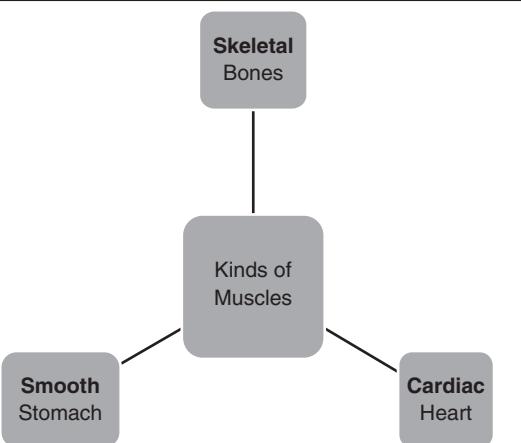
Kind of Muscle	Location	Use	Endurance	Contraction
Skeletal	Skeleton, bones	Move body parts	Tires quickly	Voluntary
Smooth	Internal organs, stomach, diaphragm, blood vessels	Digestion, breathing, blood flow	Long lasting	Involuntary
Cardiac	Heart	Pump blood	Steady, never stops	Rhythmic

Figure 1 Advance Organizer Options for Passage on Types of Muscles: Semantic Web (Upper Right) and Matrix (Lower Right)

Source: Text of figure adapted from Barnard, Stendler, Spock, and Edwards (1962).

rote memorization requires a lot of "small steps" to be stored in the memory.

In a learning hierarchy approach, the designer creates an outline of the material to be learned, starting with outcomes and then identifying necessary prerequisites. The designer would first introduce the prerequisites and then build on these to lead the learner through the passage. For example, the student might first be taught definitions for critical vocabulary, then taken through the three sketches, after which each of the paragraphs would be dissected in turn, and finally the pieces would be put back together. The steps are larger than for rote memory, but the learning process is still quite linear.

Structural approaches to comprehension like the AO model emphasize the "big picture." The reader, like a biologist, looks first for major skeletal elements that make up the body and then works out the detailed connections. What might provide the skeleton for *muscles*? We should assume that the designer/writer of *muscles* had a big picture in mind,

and the first line offers a clue: *kinds of muscle cells.* The first sentence expands the title (*three kinds*), and the second sentence even further so (*each kind performs a different job . . . each appears different through a microscope*). The passage does not highlight the function of these two sentences; the reader must seek out elements like these that can serve as building blocks (or bones) for organizing the material. The human mind is naturally inclined to organize repeated experiences—to form *schemata* that extract the essential elements from everyday activities like trips to the grocery store. Reading comprehension is a complex and demanding activity, and a primary outcome of comprehension instruction occurs when the reader has learned to search for candidate schemata when encountering an unfamiliar passage and to build a new one if necessary. With this model in mind, the AO concept was proposed as a scaffolding strategy to support beginning comprehenders in dealing with difficult materials, by providing a schema in advance. The topic *muscles*

provides several opportunities for illustrating these issues. Ausubel proposed that either a summary (a synopsis of the material with low-level propositions deleted, e.g., *lactic acid*, is not connected to *kinds*) or a classical outline might serve as an AO for this passage. The textbook actually included a preview paragraph similar to the AOs used by Ausubel in the 1960s:

> Make a mental list of all the ways that you used your muscles today. You might include running, walking, and writing. But did you add pumping blood through your heart or churning the food in your stomach? Muscles do all of these things and more.

The preview identifies the key topic, *muscles*; reminds the learner about something he or she already knows; and then lists surprising ideas like pumping blood and churning food. It does not, however, offer any hints about the primary structural feature—three kinds of muscles serve three different functions—that emerged from our reconstruction of the text.

The early AO studies relied on text material (summaries and outlines), but graphic organizers (Chambliss & Calfee, 1998) offer several advantages, and in the digital age, they have become an integral part of virtually every "office suite." For example, *muscles* might be handled as a *semantic web:* a central core with three spokes, like the one to the upper right in Figure 1. A *matrix* like that to the lower right requires more work, but it provides greater structural support. The *muscles* matrix lays out the *three types* in the first column, after which *different features* are added, and then the various cells are filled in. One advantage of the matrix structure over a semantic web is that it focuses attention on the differential features that are the essential idea in the passage. The cells also provide pointers to specific details that the reader needs to look for, details that may not necessarily be in the passage but that the reader might know from prior experience.

In what ways might an instructional designer show a student how to use a matrix as an organizer? A similar question might be raised for an advance "paragraph," but the graphic layout makes it easier to formulate this question. One approach is to present a bare-bones "three-kinds" matrix; the first column is filled in, and everything else is blank. The reader has to generate column entries and fill in the cells. Or the designer might provide the column headings, since these are presently hidden in the text, to guide the reader in moving through the text.

Finally, an experienced student would be expected to create a matrix when confronted with clues like those that are hidden in *muscles*; the ultimate value of the AO approach occurs when the student has internalized the strategy.

This example also raises the question of "when" to use an AO—before, during, or after reading. If presented in advance, the matrix provides a concrete template or schema for guiding comprehension; the reader is relieved of a major comprehension challenge, freeing memory to work on passage details. If available during reading, the matrix helps the reader keep track of the messages in the material, while also promoting active engagement if columns or cells are empty. If given to the reader after learning, the matrix can support retrieval of the material, which might be useful for the assessment of transfer—for example, "Based on what you learned about muscles, how would you predict nerve control for each kind of muscle cell?"

Figure 1 illustrates theoretical and practical investigations that have sprung from Ausubel's introduction of the AO concept. The most extensive developments have centered on extensions of assimilation (the connection of new learning to previous memories) and accommodation (changes in previous memories produced by new learning; Piaget & Inhelder, 2000). Mayer (1977, 1979) produced the most comprehensive reports along these lines. One series of studies (Mayer, 1979, pp. 373ff) explored AO impact on *reception* (encoding of information into working memory), *transformation* ("anchoring" of information during transfer from working to long-term memory), *assimilation* (integration with existing information), and *retrieval* (access to material at various points and in different situations after learning). The results showed that AO effects could be quite substantial (or not) depending on the nature of the target material, the knowledge and experience that learners brought to the situation, and the measures used to assess outcomes. For example, AO effects were generally small when recall was tested immediately with a recognition test, but they were much more substantial when tested after a substantial delay on an essay test. Learners who knew more about the topic benefited less from AO support than those who brought less to the task. For each of these findings, Mayer's conclusions were grounded in empirical studies of the underlying cognitive processes.

The idea of offering a road map for the reader about to engage with a long and difficult text might seem rather commonsensical, but the progression

of thinking that emerged from investigations of this notion illustrates how thoughtful scholarship and empirical study can inform and advance common sense. How should an organizer be constructed? How should the reader be guided in using an organizer? When should an organizer be presented— before (in advance), during (for ongoing support), or after (to review) engaging in the target material? These are but a few of the issues that arose from AO research. Perhaps the most significant contributions emerged from explorations of "how" and "why." What cognitive processes are at work when a reader employs an organizer of some sort, and why can an instructional designer most effectively employ an organizer in a particular setting?

The AO episode also illustrates the potential of efforts at bridging theory and practice, and in wrestling with a difficult problem to seek deeper understanding of the issues. Story (1998) asked, "What do instructional designers need to know about advance articles?" and rightly concluded that the answer depends on what is to be learned, who are the learners, and what are the outcomes. Story was concerned about the lack of detailed comparative studies, but the AO history suggests that designers must take an engineering approach rather than search for "pure principles." There is no general answer to the question of how to construct a suspension bridge like the Golden Gate. It depends on a variety of factors, along with principles from physical mechanics. In designing effective supports for learning new and complex ideas, instructors and designers cannot point to "one right answer," but they can draw on rich literatures such as AO research to point toward factors that matter, and to theoretical models available from cognitive learning theory, as foundation stones for designing and evaluating the effectiveness of different solutions.

Robert Calfee

See also Behaviorism; Cognitive Revolution and Information Processing Perspectives; Learning, Theories of

Further Readings

Anderson, R. C., Spiro, R. J., & Montague, W. E. (Eds.). (1977). *Schooling and the acquisition of knowledge.* Hillsdale, NJ: Lawrence Erlbaum.

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology, 51*(5), 267–272.

Ausubel, D. P. (1968). *Educational psychology: A cognitive view.* New York, NY: Holt, Rinehart & Winston.

Ausubel, D. P. (2000). *The acquisition and retention of knowledge: A cognitive view.* Boston, MA: Kluwer Academic.

Ausubel, D. P., & Fitzgerald, D. (1961). Organizer, general background and antecedent learning variables in sequential verbal learning. *Journal of Educational Psychology, 53*(3), 243–249.

Ausubel, D. P., & Youssef, M. (1963). Role of discriminability in meaningful parallel learning. *Journal of Educational Psychology, 54*(4), 331–336.

Barnard, J. D., Stendler, C., Spock, B., & Edwards, L. (1962). Muscle cells. In *Science: A key to the future* (pp. 458–459). New York, NY: Macmillan.

Barnes, B. R., & Clausen, E. U. (1975). Do advance organizers facilitate learning? Recommendations for further research based on an analysis of 32 studies. *Review of Educational Research, 43*(4), 637–659.

Chambliss, M. J., & Calfee, R. C. (1998). *Textbooks for learning: Nurturing children's minds.* Malden, MA: Blackwell.

Dinnell, D., & Glover, J. A. (1985). Advance organizers: Encoding manipulations. *Journal of Educational Psychology, 77*(5), 514–521.

Gagne, R. M. (1965). *The conditions of learning.* New York, NY: Holt, Rinehart & Winston.

Mayer, R. E. (1977). The sequencing of instruction and the concept of assimilation-to-schema. *Instructional Science, 6,* 369–388.

Mayer, R. E. (1979). Can advance organizers influence meaningful learning? *Review of Educational Research, 49,* 371–383.

Mayer, R. E., & Wittrock, M. C. (1996). Problem-solving transfer. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 47–62). New York, NY: Macmillan.

Piaget, J., & Inhelder, B. (2000). *The psychology of the child.* New York, NY: Basic Books.

Story, C. M. (1998). What instructional designers need to know about advance organizers. *International Journal of Instructional Media, 25*(3), 253–264.

Aesthetic Education

Although debates about beauty and judgments of personal taste date back thousands of years, the word *aesthetics* and the conception of aesthetics as a philosophical branch of axiology are relatively recent inventions that belong to the mid-18th-century German Enlightenment. Originally intended as a philosophy of reasoning through felt sensory experience

as evoked through poetry, *aesthetics* was quickly appropriated into widespread popular use as an umbrella term to embrace all discussions concerning the judgments of beauty and art. In these early formulations, beauty corresponded to truth; thus, beauty said truthful things about the world. Art was an empirical expression of beauty. This entry traces the evolution of the original German concept of aesthetic education and then examines three different contemporary theories: (1) the essentialist, (2) the cultural, and (3) the cognitive. Finally, the Lincoln Center Institute in New York provides a curricular example of integrating these aesthetic education theories into practice.

Aesthetic Education as a Curricular Concern

In 1795, Friedrich Schiller, writing at a time of high exhilaration and anxiety over the recent American and French revolutions, posited aesthetic education as essential to the development of individuals who could think for themselves. According to Schiller, only aesthetic education could train a new generation of citizens who were capable of forming their own judgments. In the presence of beauty, individuals would experience and come to know truth, without being told by authorities what to do. Early-19th-century advocates for public schooling in both Germany and the United States rapidly adopted Schiller's conception of aesthetic education as a tool for creating a competent democratic citizenry.

Perhaps the first practitioner to move Schiller's theory into a school curriculum was the Swiss educator Johann Pestalozzi. Working with orphans and disadvantaged children, Pestalozzi saw aesthetic education as a means of enticing children into learning. Eventually, Pestalozzi's curriculum became the foundation for the German drawing method adapted by the emergent Prussian system for public education. In turn, American transcendentalists Horace Mann and Mary Peabody traveled to Germany to observe this curriculum in practice. They brought it to the United States and the new public school systems in America.

Separately, Pestalozzi's student Friedrich Froebel advocated another path of aesthetics as experiential sensory education: the kindergarten. Mary Peabody's sister, Elizabeth Peabody, was instrumental in bringing this innovation to the United States. In yet another track, in the 20th century, Rudolf Steiner would build on Pestalozzi's curriculum to construct Waldorf education.

While theses evolutions of aesthetic education into schooling may appear to form a tidy narrative, it is hardly so. The 20th century actively decoupled the concept of beauty from truth, as well as beauty from art. Arthur Danto famously claimed that by 1964 we had reached the end of art. For aesthetics to be a part of philosophy, there had to be objects that belonged to the domain and others that could be logically excluded. If anything could be art, Danto claimed, the philosophical project of aesthetics was over. Today, the degradation of the term *aesthetics* is readily apparent. For example, *an aesthetician* can refer to both a university professor of philosophy and a beauty parlor nail specialist. A term with such chameleon qualities is difficult to use in scholarly discourse.

Three Views of Aesthetics and Education

Nevertheless, the philosopher Richard Shusterman (2006) offers three useful categories for conceptualizing the continuing role of aesthetics in education. First and foremost, aesthetics refers to essentialist universal judgments of beauty. This is commonly associated with the philosophy of Immanuel Kant. In this conception, there is enduring, universal knowledge that cuts across time and cultures. Any educated person needs to know this foundational material. The advocates for this position argue that all students should, at minimum, be able to identify exemplar works by major artistic figures such as William Shakespeare, Leonardo da Vinci, or Ludwig van Beethoven. Moreover, they should also be able to obtain aesthetic satisfaction (i.e., pleasure and delight) from these works. The curricular theorist Harry Broudy (1972) referred to this as "enlightened cherishing." Today, the *Journal of Aesthetic Education* continues Broudy's legacy.

Shusterman's second philosophical category is cultural. The philosophy of Georg Wilhelm Friedrich Hegel is readily associated with this view. In this conception, there are no universal truths, but it is valuable to study the contributions of different cultures. For example, the study of West African kente cloth (a foundational and perennial aesthetic tradition within Ashanti culture) provides a means for individuals who are outsiders to have an empathetic understanding of Ashanti culture. Aesthetic education would engage students in studying how cultural values are inscribed in an object. Studying distinctive ways of inscribing opens students to understanding the possibilities of the human imagination. Maxine

Greene (2001) is an important contemporary proponent of this view, as aesthetic education opens inquiry into the potential for humans to communicate within and outside of language. Here, aesthetic education easily steps into multimodal literacy education by allowing creative work from outsider youth subcultures such as graphic novels, zines, and comic jamming a place in the literacy classroom.

Shusterman's third category is the cognitive. As stated earlier, the original philosophy project was the study of rational thinking through the senses. Pestalozzi claimed that the mind was shaped through drawing. Early German writings in aesthetic education claimed that students experienced a special form of being in relationship. At first, this German concept could not be adequately translated into English, so by the early 20th century, a new word had been created: *empathy*. Thus, empathy is a content goal for learning within aesthetic education.

Here, empathy is more than simply understanding another culture (as in the kente cloth example). Empathy is also a capacity to understand one's self—the sensate body—in relationship to the world. John Dewey's *Art as Experience* (1934/1989) explores how sense serves as a provocateur to symbolic thinking. Simultaneously with Dewey's American-based inquiry into prelinguistic thinking, the emerging German philosophies of hermeneutics and phenomenology explore similar issues. George Lakoff and Mark Johnson (1999) are contemporary advocates for such embodied philosophy. In a pragmatic approach to actual classroom practice, award-winning children's author Molly Bang's *Picture This: How Pictures Work* (2000) offers examples of how visual images convey narrative, without the use of words, through the relationship of visual qualities. Bang demonstrates how pictures convey complex intuitions before students may have the words to articulate understandings.

Postmodern aesthetic education also falls into this third category. Postcolonial scholar Gayatri Chakravorty Spivak (2012) evokes Schiller's original project as a practice of resistance to institutional authority. She frames aesthetic education as disciplined subversion to the tyranny of language, in order that autonomous individuals can emerge in a time of relentless global standardization.

Curricular Applications of Aesthetic Education

Institutions that foster curricula in aesthetic education can intentionally or unintentionally blend all three of Shusterman's categories. The Lincoln Center Institute, the educational wing of the Lincoln Center for the Performing Arts in New York City, provides an example. Closely aligned with the work of Greene, Lincoln Center Institute first seeks to build audiences for the expensive cultural productions mounted at Lincoln Center. The institute fosters an appreciation of enduring excellence, Shusterman's first category of aesthetics. Second, the institute works with multiple art forms that reflect the diverse populations of New York City and sends teaching artists into classrooms to work with children in the children's own cultural contexts. This builds empathetic relationships, Shusterman's second strand. Third, Greene's philosophy champions imagination launched by deeply felt somatic experience, Shusterman's third strand of aesthetics. Thus, one could argue that the Lincoln Center Institute offers a rich integrative approach to aesthetic education. However, whether a curriculum is integrative or merely confused requires close attention to the alignment of objectives, activities, and assessment.

Richard Siegesmund

See also Dewey, John; Embodiment; Essentialism, Perennialism, and the "Isms" Approach; Greene, Maxine; Pestalozzi, Johann H.; Waldorf Education: Rudolf Steiner

Further Readings

Bang, M. (2000). *Picture this: How pictures work*. San Francisco, CA: Chronicle Books.

Broudy, H. S. (1972). *Enlightened cherishing: An essay on aesthetic education*. Urbana: University of Illinois Press.

Costantino, T., & White, B. (Eds.). (2013). *Aesthetics, empathy, and education*. New York, NY: Peter Lang.

Dewey, J. (1989). Art as experience. In J. Boydston (Ed.), *John Dewey: The later works, 1925–1953* (Vol. 10, pp. 1–400). Carbondale: Southern Illinois University Press. (Original work published 1934)

Greene, M. (2001). *Variations on a blue guitar: The Lincoln Center Institute lectures on aesthetic education*. New York, NY: Teachers College Press.

Lakoff, G., & Johnson, M. (1999). *Philosophy in the flesh*. New York, NY: Basic Books.

Schiller, F. (2004). *On the aesthetic education of man* (R. Snell, Trans.). Mineola, NY: Dover. (Original work published 1795)

Shusterman, R. (2006). The aesthetic. *Theory, Culture & Society, 23*(2–3), 237–252.

Spivak, G. C. (2012). *An aesthetic education in the era of globalization.* Cambridge, MA: Harvard University Press.

AFFIRMATIVE ACTION

The phrase *affirmative action* entered policy discourse in the United States in 1961, with President John F. Kennedy's Executive Order 10925, which called for all federal agencies to take affirmative action to avoid discrimination in their hiring practices. However, the phrase *affirmative action* was not defined. The term was used again in President Lyndon B. Johnson's 1965 Executive Order 11246, which revised Executive Order 10925, but it still was not officially defined. Three years later, the Department of Labor, responsible for enforcing the policy, characterized affirmative action as a program emphasizing increased opportunities for underrepresented groups through expanded applicant pools and active recruiting and outreach strategies. Since then, debates over the merits of affirmative action policies and programs have endured, underscoring differences in ethical and political values.

Although specific programs may differ from one another, affirmative action is most often defined as a policy that aims to take an applicant's race, ethnicity, and gender into account in selection decisions. In the United States, this means that if an applicant is African American, Latino, Asian American, Native American, and/or female, this fact is taken as one qualifying factor among many considered in admissions or hiring processes. The range of affirmative action programs is broad, from federal contracts to employment and promotion, to college and university admissions. On the basis of the affirmative action policies in Executive Order 11246 and Title VI of the Civil Rights Act of 1964, which specified that discrimination by race, color, religion, sex, or national origin was prohibited by agencies receiving federal funding, many businesses, public agencies, and institutions of higher education began to revise their admissions and hiring policies so that a broader pool of people could have increased educational and employment opportunities.

The controversy over affirmative action has resulted in numerous important court cases that have shaped the contours of the policy. Those cases include most prominently *Regents of the University of California v. Bakke* (1978), *Gratz v. Bollinger* (2003), *Grutter v. Bollinger* (2003), *Parents Involved in Community Schools v. Seattle School District No. 1, Meredith v. Jefferson County Board of Education* (the last two cases were combined by the U.S. Supreme Court as *Parents Involved in Community Schools v. Seattle School District No. 1, et al.,* 127 S. Ct. 2738 [2007], known as *PICS*, 2007), and *Fisher v. University of Texas* (2013). In a series of cases since *Bakke*, the Court has set limits on the use of affirmative action policies in education and employment. It has narrowed the use of race-conscious affirmative action in education, at both the higher education level and the K–12 level, but the practice remains legal and viable. Quotas are rarely if ever used, based on the *Bakke* ruling against quotas and set-aside places at universities. *Gratz* reinforced the impermissibility for numeric set-asides in university admissions, and *Grutter* upheld the constitutionality of affirmative action plans that are narrowly tailored to serve the compelling government interest of diversity. In the *PICS* case, the Supreme Court ruled that voluntary racial integration plans in place in school districts in Seattle and Louisville were not narrowly tailored and, thus, unconstitutional. However, it did not overturn *Grutter*, and it supported the idea that diversity is a compelling interest in both higher education and K–12. In its June 24, 2013, ruling in *Fisher*, the Court ruled 7:1 that institutions of higher education are permitted to consider race or ethnicity as one factor in the admissions process. In addition, the Court declined to rule on the specific case and instead remanded it back to the lower courts. What this means for affirmative action policy in 2013 is that the Court declined to strike down the *Grutter* precedent through *Fisher*. It also means that institutions of higher education practicing affirmative action in their admissions would be prudent to design those policies in accord with the *Grutter* decision's mandate for flexible and individualized applicant review.

The affirmative action debate is characterized by a set of prominent rationales in favor of its use, on one side, and a set of criticisms of it, on the other. These are described in the next sections.

Prominent Justifications for Affirmative Action

As Moses (2010) has described, common justifications for affirmative action have typically fallen under four categories: (1) remediation, (2) economics, (3) diversity, and (4) social justice.

Under remediation, affirmative action compensates for past discrimination. The remedial rationale is a moral justification aimed at righting past wrongs and emphasizing compensatory, corrective action to rectify unfair treatment by race, ethnicity, and gender. Remediation was once the most prominent rationale used in the United States, until the courts showed it to be viable only in some specific cases of provable past discrimination, and the U.S. Supreme Court found it to be a less compelling rationale than arguments based on diversity.

Economic rationales highlight affirmative action as helping disadvantaged people contribute to economic efficiency and productivity. An instrumental rationale, the economic argument for affirmative action centers first on society's need for a greater number of disadvantaged people to be educated and to join the workforce and contribute to the economy. Second, economic efficiency requires the development of more role models for disadvantaged youth, so they will understand the importance of contributing to society and believe that they are capable of making such contributions. In this case, "contributing" signifies making economic contributions and no longer relying on welfare. Appeals to the role of affirmative action in increasing people's later economic productivity or engagement in mainstream economic affairs have not been as compelling as the diversity rationale in the United States, either in the public discourse or in the legal arena.

Under the diversity rationale, affirmative action serves to increase diversity and the educational and social benefits that flow from it. Researchers in this area have found significant educational benefits of having diverse classrooms, campuses, and work environments, specifically so that they improve research quality, learning experiences, problem-solving abilities, critical-thinking skills, and preparation for life in a multicultural society. Stemming from Justice Lewis Powell's opinion in the *Bakke* decision, affirmative action is a compelling state interest because of the educational benefits that flow from a diverse student body. Justice Powell explained that a diverse student body increases and deepens the perspectives present in classrooms and on campus, allowing for a richer learning environment. The diversity rationale became even more prominent after the 2003 *Grutter* decision. The University of Michigan defense in this case relied most heavily on the *Bakke* precedent to justify affirmative action in university admissions based on a compelling state interest to have racially and ethnically diverse institutions of higher education.

The social justice rationale focuses on racial integration, elimination of institutionalized inequalities, and equity in democratic participation. Relevant here is Young's (1990) definition of social justice as "the elimination of institutionalized domination and oppression" (p. 15). Social policies and societal institutions directly influence the presence of social justice (Arthur & Shaw, 1991). As Anderson (2002) argued, racial integration is important in providing opportunities to racial minorities and for fostering a democratic civil society. Through its role in increasing educational and social opportunities, affirmative action expands its beneficiaries' social context of choice—the context within which they make decisions about the future and participate in democratic politics.

Other scholars have made distinctions between types of justification. Anderson (2002), for one, highlighted two justificatory categories for affirmative action: (1) compensatory and (2) integrative. Under compensatory justifications, affirmative action policies provide "restitution for illegal discrimination that took place in the past" (p. 1196). This is parallel to the remediation rationale. Proponents of the integrative rationale, including Anderson herself, aim "to dismantle *current* barriers to equal opportunity for disadvantaged racial groups" (p. 1196). Anderson defined racial integration as "the full inclusion and participation as equals of citizens of all races in American institutions" (p. 1197). She explained, "The integrative model represents race-conscious affirmative action as a forward-looking remedy for segregation, rather than as a backward-looking remedy for discrimination" (p. 1197). The integrative rationale fits well under the broader rationale based on social justice.

Prominent Arguments Against Affirmative Action

According to Moses (2002), the most prominent criticisms of affirmative action center on the following: (1) reverse discrimination, (2) merit, (3) stigma, (4) social divisiveness, and (5) social class.

The first argument is that affirmative action amounts to reverse discrimination and violates key civil rights legislation such as the 14th Amendment and Title VI of the Civil Rights Act. Critics argue that when institutions take an applicant's race or ethnicity into consideration in admissions or hiring

processes, it is tantamount to discrimination against White students. Second is the notion that affirmative action degrades the merit-based standards at selective institutions, resulting in the acceptance of students or the hiring of professionals who are unqualified for the rigors of selective education or employment. Many White students believe that affirmative action policies came at the expense of their fair educational opportunities embodied in unbiased, merit-based selection. A third criticism, often movingly brought to the fore by critics of color themselves, is that students of color admitted under affirmative action policies end up feeling inferior to their White classmates. They argue that affirmative action stigmatizes students of color who end up with damaged self-confidence or feelings of self-worth, first, because they begin to doubt that their own qualifications earned them their admission, and, second, because they cannot compete with other students at selective institutions. Fourth, a claim made by opponents of affirmative action is that it ends up causing racial divisions rather than enhancing a healthy climate of diversity. These opponents worry that the social divisiveness that affirmative action policies create leads to racial conflicts between White people and people of color, often because of the resentment that White people feel. They argue that it is time to return to the ideal of color blindness, that the divisiveness of affirmative action has been endured long enough. Last, some critics of current affirmative action argue that it should shift from race-conscious to class-conscious policies, so that low-income men and women of all racial and ethnic groups would benefit. There are those on both sides of the affirmative action issue who would solve the controversy by simply replacing race and ethnicity with socioeconomic class.

In 1978, as the U.S. Supreme Court upheld the constitutionality of race-conscious affirmative action, Justice Harry Blackmun explained, "In order to get beyond racism, we must first take account of race. There is no other way. And in order to treat some persons equally, we must treat them differently" (*Bakke*, 1978). Nearly 30 years later, the Supreme Court chief justice John Roberts argued against race-conscious student assignment policies in his majority opinion in *Parents Involved in Community Schools v. Seattle School District No. 1* (2007), asserting that "[t]he way to stop discrimination on the basis of race is to stop discriminating on the basis of race." Their disagreement is at the heart of the dispute over affirmative action and is reflected in the most prominent apologies for and criticisms of the policy.

Michele S. Moses

See also Diversity; Equality of Educational Opportunity; Higher Education: Contemporary Controversies

Further Readings

Adarand Constructors Inc. v. Pena, 515 U.S. 200 (1995).

Anderson, E. (2002). Integration, affirmative action, and strict scrutiny. *New York University Law Review, 77,* 1195–1271.

Arthur, J., & Shaw, W. H. (Eds.). (1991). *Justice and economic distribution* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.

Fisher v. University of Texas, No. 11–345, 570 U.S. __ (2013).

Gratz v. Bollinger, 539 U.S. 244 (2003).

Grutter v. Bollinger, 539 U.S. 306 (2003).

Moses, M. S. (2002). *Embracing race: Why we need race-conscious education policy.* New York, NY: Teachers College Press.

Moses, M. S. (2010). Moral and instrumental rationales for affirmative action in five national contexts. *Educational Researcher, 39*(3), 211–228.

Parents Involved in Community Schools v. Seattle School District No. 1, 551 U.S. 701, 788 (2007).

Regents of the University of California v. Bakke, 438 U.S. 265, 407 (1978).

Young, I. M. (1990). *Justice and the politics of difference.* Princeton, NJ: Princeton University Press.

Aims, Concept of

At first sight, the concept of aims looks philosophically untroubling. One's aims are the things one hopes to achieve by one's efforts. Aims differ from other kinds of intention in that they involve the possibility of falling short. My intention to post a letter on my way to work this morning does not count as an aim because, while it can be frustrated by my forgetfulness or my not having time to make a stop, it cannot (usually) be frustrated by the difficulty of the task in hand, by my having tried but having failed to get the letter into the mailbox. To have an aim, then, is to intend to achieve by one's efforts something one's efforts may not be sufficient to achieve.

Many of the intentions of educators have this character. Bringing about learning in others is almost always a task one's efforts may not be sufficient to achieve. Accounts of what the learning educators are

trying to bring about, either in general or on particular occasions, are therefore properly described as accounts of their aims.

So far, so uncontroversial. It may seem that the only philosophical question about educational aims left to argue about is the substantive question of what those aims should be. But in fact there has been a good deal of philosophical disagreement about how and where aims should feature in educational theory. Following is a brief survey of the most prominent strands of this disagreement.

The Conceptual Thesis

An influential thesis about the aims of education is that they are implicit in the concept of education and can be made explicit by means of conceptual analysis. On this view, associated most strongly, perhaps, with the British philosopher R. S. Peters, to ask about educational aims is to ask for a more precise specification of the activity of educating. The term *education* picks out a certain form of human activity oriented toward a certain set of ends; to give a fully elaborated account of that activity and those ends is to say all that there is to say about the aims of education.

This conceptual thesis leads Peters to draw a sharp distinction between the aims of education and a person's *purposes in educating*. While to be engaged in educating at all is necessarily to be pursuing the built-in aims of education, there may be various other things a person hopes to achieve by engaging in the activity. A teacher may care deeply about children's happiness and believe that educating them improves their chances of being happy. A government's primary motive for providing state education may be to build and maintain a strong national economy. Motivations like these, argues Peters, are extrinsic reasons for educating, not aims of education.

One worry here is that Peters seems to have introduced an arbitrary constraint on the use of the word *aim*. It is natural to say, in the cases just given, that the teacher has the aim of making children happy and the government has the aim of strengthening the economy. Perhaps, then, it would be better to distinguish between *intrinsic* and *extrinsic* educational aims. Some of the things at which educators aim are necessary to the activity of educating; others are only contingently connected to the activity. But note that this apparently small amendment to the conceptual thesis significantly narrows its scope:

It is now no longer a general thesis about the aims of education but a specific thesis about one type of educational aim.

Can Extrinsic and Intrinsic Aims Be Separated?

Another worry is that the distinction between aims and purposes, or between intrinsic and extrinsic aims, may not be as clear-cut as it appears. John White argues that, while the distinction works well for games like football and chess, its application to the practice of education is more problematic. Games have well-defined sets of rules and objectives: Part and parcel of what it is to play football is to have the aim of scoring goals. Education, on the other hand, is a practice whose procedures and ends are much less determinate and are often matters of controversy. Those who have attempted to derive specific principles of curriculum and pedagogy from the concept of education have invariably been accused of writing their own ideals into the concept. There remains an important distinction between intended learning, which is the direct focus of educational effort, and intended goods of other kinds (happiness, a strong economy, etc.), to which learning is a necessary or efficient means; but if *this* is the distinction we mean to mark by talk of intrinsic and extrinsic aims, it may be doubted that conceptual analysis can yield determinate aims of either type.

Predetermined Versus Context-Sensitive Aims

A second strand of disagreement about educational aims turns on whether or not they can be specified in the abstract, in advance of engagement with particular groups of learners. One need not subscribe to the conceptual thesis to think they can. White, for example, defends by normative rather than conceptual arguments a detailed general account of the virtues, skills, knowledge, and understanding at which educators should aim. But John Dewey, in *Democracy and Education* (1916), warns against any attempt to impose on educators a set of aims determined independently of the particular contexts in which they are working.

Dewey's objection to predetermined educational aims is that they are insufficiently sensitive to the needs of individual learners and the options open to individual teachers in any given context. Aims, he contends, are central to all human activities: They are the means by which agents give direction to what they are doing. But they only serve a useful purpose if they are provisional, flexible,

and organically connected to the circumstances of action. Teachers must continually devise and revise their aims in relation to the aptitudes, interests, and preconceptions of their pupils; to the physical and pedagogical resources available to them; to the unanticipated opportunities for learning that arise through classroom interaction; and to all the other contingent features of particular educational contexts. Aims predetermined by educational theorists are responsible, says Dewey, "for rendering the work of both teacher and pupil mechanical and slavish" (p. 129).

A possible response to Dewey is to question his all-or-nothing characterization of the choice between general, context-independent aims and particular, context-sensitive ones. It is plausible to hold that there is room for both. The theoretical project of prescribing aims for education, of giving a broad, normatively justified account of the range of learning educators should be trying to bring about, may be more compatible than Dewey suggests with the practical project of giving direction to classroom activity through the formation and amendment of concrete, situation-specific aims.

Product-Oriented Versus Process-Oriented Model

A third strand of disagreement is prompted by the radical thought that educators should repudiate aims altogether. To ask what learning educators should aim to bring about, it is sometimes suggested, is to buy into a product-oriented, rather than a process-oriented, model of the curriculum. It is to assume that teaching is only effective if it is directed toward the achievement of precisely specified learning objectives. But this is a serious mistake. A characteristic feature of rich and worthwhile educational experiences is that participants learn from them in different and unpredictable ways. The point of studying, say, Shakespeare's *Hamlet*, is not that everyone in the group should come to know an identical set of facts about the play but that everyone should find something in it that moves or disturbs or inspires them, that illuminates or transforms some aspect of their experience. It would be neither possible nor desirable to specify in advance, as objectives to be pursued, the multiple ways in which learners can be touched and transformed by engagement with literary texts.

While this represents a powerful critique of the sort of rational curriculum planning associated with the work of Ralph Tyler, it is less clear that it casts genuine doubt on the need for educational aims. Lawrence Stenhouse, the most prominent advocate of the "process model" of the curriculum, does not see himself as rejecting educational aims per se but as rejecting the sort of aims that can be translated into detailed, specific learning objectives. Education, he argues, is about initiating learners into modes or systems of thought that enable them to think and judge creatively and independently. Initiating a learner into a mode of thought is a different kind of aim from teaching her a simple skill or bare fact, and no doubt one whose achievement is more difficult to assess; however, it is an aim nonetheless. So while the debate between product- and process-oriented curriculum theorists is often portrayed as a dispute about whether aims are needed in educational theory, it is perhaps better understood as a dispute about what the aims of education should be.

Michael Hand

See also Analytical Psychology: Carl Jung; Continental/ Analytic Divide in Philosophy of Education; Education, Concept of; Peters, R. S.; Scheffler, Israel; Wittgenstein, Ludwig

Further Readings

Dewey, J. (1916). *Democracy and education*. New York, NY: Macmillan.

Peters, R. S. (1966). *Ethics and education*. London, England: Allen & Unwin.

Stenhouse, L. (1975). *An introduction to curriculum research and development*. London, England: Heinemann.

Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. Chicago, IL: University of Chicago Press.

White, J. (1982). *The aims of education restated*. London, England: Routledge & Kegan Paul.

ALIENATION

The modern meaning and usage of the term *alienation* refer to becoming separated or estranged from something or oneself, and come from various philosophical, religious, and theoretical traditions. This entry will concentrate on the Hegelian and Western Marxist theory of alienation, given its prominence in contemporary social and educational theory as well as recent empirical sociological studies.

Hegel and Marx

Georg W. F. Hegel (1770–1831) in his epic work *The Phenomenology of Spirit* (1977) popularized the modern theoretical understanding of alienation using the German words *entfremdung* ("to make alien") and *entäusserung* ("to surrender or divest," as in property). Hegel utilizes both words to characterize alienation in terms of a particular historical period and culture, or "spirit" of the age, which is marked by the separation of the self from itself and cultural and spiritual disunity. Hegel's emphasis on the realm of culture, the self, and ideas inspired a wide range of contemporary work on alienation or "estrangement" in the modern self, in the spiritual realm, and in the relationship between the individual and modern cultural forms. Most significantly, Hegel was a major influence on the young Karl Marx and his own social philosophy.

Marx develops his historical materialism in opposition to Hegel's attempt to reconcile subject and object in the sphere of consciousness instead of on the ground of human material praxis. For Marx, both alienation and commodity fetishism arise *in* capitalist society and describe an inverted form of "species-being" in which human beings become dominated by the objects they produce in capitalist relations of production.

Marx argues that the worker in capitalist society is estranged in several respects: from the product and process of labor, from other workers, and from himself or herself. What is common to and underlies all these aspects of estrangement is the *process* whereby the laborer is transformed into a commodity and becomes an *object* to be bought and sold on the market like any other commodity. The laborer not only loses himself or herself in the object (product), and loses the object to the capitalist, he or she becomes an object and exists in a condition of objectification. Alienation for Marx is not only or primarily an *experience* of estrangement but a material and ontological condition—of distorted historical being formed within the capitalist relations of production. Laborers can only enter into the realm of human being, of human subjectivity, by transcending the alienated labor and ownership relations of capitalism.

In the master work of his later years, *Capital* (1867), Marx extends his earlier analysis of alienation to a thoroughgoing critique of the capitalist mode of production. His seminal critique of political economy proceeds through unraveling the answer to the central riddle of capitalist society—the true nature of the commodity. For Marx, commodification is another way to analyze the inverted/alienated subject–object world of capitalist society, in which abstract exchange value takes precedence over concrete material use value and economic (market) relations come to dominate the whole of human and social life. In capitalist societies, these economic relations are organized by the production, circulation, and exchange of objects to increase the private profit of capitalists, not to satisfy the needs and welfare of the producers. The production and exchange of these commodity-objects, an abstract historical artifact of capitalist ownership, thus become the basis and purpose of capitalist life itself, subordinating real material needs to "alien powers" and the benefits of the capitalist class.

Thus, the commodity form is analyzed by Marx as the major alienating power dominating human life in capitalist society to such an extent that only objects are endowed with value (the "fetishism" of commodities). In this inverted/alienated world, human qualities are transferred to commodities, and the characteristics of objects are transferred to human beings. Moreover, these economic forms appear to have a reality independent of the real human beings who have created them in history.

Lukács and the Frankfurt School

In *History and Class Consciousness*, Georg Lukács transforms Marx's concept of commodity fetishism into his own theory of alienation or "reification" by integrating Weber's theory of Western rationalization into Marx's philosophy of praxis. As with Marx, Lukács aims to uncover the inversion of ideological appearance over reality in capitalist societies through rigorous examination of the very cultural logic of capitalist life. However, Lukács draws on Weber to analyze this cultural logic and its ideological effects in every institution of modern society. His amalgamation of Weber's rationalization thesis and Marx's analysis of commodity fetishism comes together in a critical analysis of the "reification" of capitalist society. Lukács argues that contemporary capitalist societies are pervaded by a Weberian type of instrumental rationality that dominates human beings to such an extent that capitalist society becomes reified; individuals lose the ability to understand their own society or history. While the capitalist economic system is ultimately the basis of

this formal rationality, the reified world comes to have a relatively autonomous hold over social life, including the economy. With the development of reification, he argued, not only individual reason but also the possibility of working-class consciousness was structurally blocked without the use of critical theory. However, by opposing the reified world of formal rationality with a critical dialectical reason, Marxism could explode the realm of objectified appearances and transcend the gap between subject and object in revolution.

Lukács was one of the primary inspirations for the Frankfurt school's critical theory of modern society. In the face of fascism and the postwar spread of capitalist ideology, Max Horkheimer (with Theodor Adorno in *Dialectic of Enlightenment* [1972], Erich Fromm, Walter Benjamin, and Herbert Marcuse) combined the insights of Marx, Lukács, Sigmund Freud, Friedrich Nietzsche, and others into analyses of modern alienation that intensified and deepened the critique of uniquely modern forms of domination. Marcuse's *Eros and Civilization* (1955) and *One-Dimensional Man* (1964) and Fromm's *The Sane Society* (1955) are particularly powerful examinations of the mid- to late-20th-century alienation of self in capitalist society. However, unlike Adorno and Horkheimer, Marcuse and Fromm held out hope for the dialectical negation of alienation—for Marcuse in the aesthetic dimension and student revolt and for Fromm in the integration of self in psychoanalysis.

Freire

In educational theory, the Brazilian educator and philosopher Paulo Freire has been the most influential writer on student alienation. Freire (1921–1997) is a critical theorist in the Western Marxist tradition, and his project, his "pedagogy of the oppressed," is specifically concerned with the transcendence of alienation and oppression through the development of a critical literacy with revolutionary intent. However, unlike previous traditions of critical theorizing, Freire's educational work is intent on explicitly combining theory and practice in his philosophy itself. He established this reputation with his seminal 1972 book *Pedagogy of the Oppressed*, as well as his political practice developing and implementing literacy programs in his native Brazil and throughout the world.

At the foundation of Freire's pedagogy is a philosophical anthropology about the nature of the human being. For Freire, as for Marx, human nature is radically historical. It is only capable of being defined and understood as potentiality—of possibility within conditions of freedom. It is not possible to understand human nature abstracted from the specific and powerful social relations and structures within which we live at any given historical moment. Freire asserts, with Marx, that human nature is defined by the potential for imagination, creativity, and meaning and the free exercise of our productive powers through unalienated work. We are who we can potentially become through our capacity to think, feel, and work under conditions of our own choosing. "Human" being only becomes realized when the individual and community are actualized together in a reciprocal process.

The alienated condition of the oppressed necessitates a revolutionary pedagogy for humanization and critical consciousness. This pedagogy is no mere collection of methods or technical teaching skills to be applied within the framework of traditional schooling. For Freire, the pedagogy of the oppressed must be radically dialogical. Education for liberation cannot be imposed on or imparted to the oppressed; it can only be created with them in the *process* of humanization. Freire develops his pedagogy in contrast to traditional "banking" methods that preserve the status of the oppressed as objects, and advocates a critical and dialogical education that poses problems for students. Teacher and students in this conception work together as equals to actively solve problems about the nature of social reality and, in the process, to change this reality. If consciousness is intentional and active, authentic education cannot be based on depositing facts into it.

Later Works on Alienation

Other major works in recent educational theory and scholarship that have made significant contributions to understanding alienation in schools include Paul Willis's *Learning to Labor* (1981), Carol Gilligan's *In a Different Voice* (1982), Douglas Foley's *Learning Capitalist Culture* (1990), Donna Gaines's *Teenage Wasteland* (1990), Jane Roland Martin's *Changing the Educational Landscape* (1994), Julie Bettie's *Women Without Class* (2003), and C. J. Pascoe's *Dude You're a Fag* (2011), just to mention some of the most influential scholarship.

Benjamin Frymer

Further Readings

Feenberg, A. (1986). *Lukács, Marx and the sources of critical theory.* New York, NY: Oxford University Press.

Fromm, E. (1955). *The sane society.* New York, NY: Fawcett Premier.

Lowith, K. (1993). *Max Weber and Karl Marx.* London, England: Routledge.

Ollman, B. (1971). *Alienation: Marx's conception of man in capitalist society.* London, England: Cambridge University Press.

Schacht, R. (1970). *Alienation.* New York, NY: Doubleday.

ANALYTIC PHILOSOPHY OF EDUCATION: DEVELOPMENT AND CRITIQUES

ANALYTICAL PSYCHOLOGY: CARL JUNG

Carl Gustav Jung (1875–1961) was a Swiss psychiatrist and the founder of the school of analytical psychology. The son of a Swiss Reformed minister, he grew up in Basel, where he was influenced by the writings of Jacob Burckhardt and Friedrich Nietzsche. He described his formative school experiences in his autobiography, *Memories, Dreams, Reflections.* Graduating from the municipal university, he joined the staff of Eugen Bleuler at the Burghölzli Mental Hospital in Zürich, where he conducted groundbreaking studies of the psychology of schizophrenia. His word association experiments established the existence of emotional "complexes" and led to the creation of the lie detector test. An early adherent of psychoanalysis, he became its leading spokesman and developed a close relationship with Sigmund Freud. After they parted ways in 1913, Jung elaborated an alternate model of the unconscious that focused on its collective dimension, which expresses itself in an imagistic language of dreams, myths, and symbols. With its emphasis on the creative potential of the human psyche, his approach has appealed to everyday people seeking guidance in life as well as artists as diverse as the painter Jackson Pollock and the musician Sting. By way of Joseph Campbell, whose studies of world mythology reached a wide audience, Jung's theory of the archetypes helped inspire *Star Wars*, and one of them, the *persona* ("social mask"), has entered common parlance.

Jung's new psychological approach was promoted in the United States by Beatrice Hinkle, a neurologist who had studied with him in Zürich. This was during the Progressive Era, when the latest ideas from the social sciences were being applied to the problems of a modern industrial society. Many college graduates gravitated to New York City's Greenwich Village in lower Manhattan, where they worked in settlement houses and became labor activists. Some formed the Heterodoxy Club, America's first feminist organization. They also championed educational reform and, with their Montessori training, started New York's first progressive schools, such as Walden, and City and Country. They applied Jung's ideas about child development and creative self-expression in their curricula. Their focus on educating the whole child was evident in art classes and social activities conducted by a psychologically informed faculty. One of them was a school psychologist, Frances Wickes, whose cases confirmed one of Jung's (1974) key observations that "most of the nervous disturbances in childhood can be traced back to a disturbed psychic atmosphere in the home" (p. 39).

Jung was invited to speak at the International Congresses of Education held at Territet, Switzerland (1923), London (1924), and Heidelberg (1925). These were organized by Beatrice Ensor, who had helped found the International Bureau of Education in Geneva under the auspices of the Rousseau Institute, which was later reorganized with Jean Piaget as one of its codirectors.

In his later years, Jung continued to lecture and maintain a busy analytical practice while exploring the relationship of psychology to alchemy, Buddhism, and physics. After World War II, he took a keen interest in the UFO (unidentified flying objects) craze and interpreted it as an emerging myth of the Nuclear Age. The first Jungian training institute was founded in 1948 and is now part of an international network of Jungian organizations.

Contributions to Educational Theory and Practice

Modern ideas about education began with the writings of Jean-Jacques Rousseau (1712–1778), who emphasized the importance of freeing the child from the strict discipline and rote learning common at the time. His ideas were developed further by another Swiss, the pedagogue Johann Heinrich Pestalozzi (1746–1827), who opened up schools that adopted a holistic approach that fostered the emotional and social as well as cognitive development of the child. Jung adapted the 19th-century German educational ideal of *Bildung* ("cultivation") for the 20th century by extending it to include a person's entire life span. "The way of successive assimilations . . . leads in the end to that distant goal which may perhaps have been the first urge to life: the complete actualization of the whole human being, that is, individuation" (Jung, 1974, p. 160).

Jung (1974) felt that the teacher's most important influence was emotional rather than intellectual.

> An understanding heart is everything in a teacher, and cannot be esteemed highly enough . . . the curriculum is so much necessary raw material, but warmth is the vital element for the growing plant and for the soul of the child. (p. 144)

He emphasized what he called the "self-education of the educator." To develop psychologically mature teachers, he advocated that they become aware of their dream life to understand their own complexes and their effect on students. Although this particular suggestion was never adopted, education courses and workshops now routinely address the psychological training of teachers.

Jung's most important contribution to practical psychology was his theory of extraverted and introverted personality types. Although there is no such thing as a pure type, people tend to exhibit a primary orientation to either the outer world or their inner, subjective world. In an extraverted society such as the United States, introversion is routinely misinterpreted as shyness and labeled as a negative trait. Besides these general types, Jung further distinguished four different psychological functions, one of which becomes dominant during a person's development: (1) thinking (what something means), (2) feeling (what its value is), (3) sensation (what it is), and (4) intuition (what it might become). Personality assessment tests are now routinely administered in business and counseling, one of the most popular being the Myers-Briggs, which was developed by followers of Jung.

A major development in educational psychology that generally supports Jung's discoveries has been the work of Howard Gardner and his theory of "multiple intelligences." Although there is no one-to-one correlation, both scholars do postulate a variety of naturally occurring functions or intelligences that need to be recognized by educators. More recently, Gardner has considered the possibility of spiritual or existential intelligences that would lend support to Jung's idea that a religious instinct is one core component of the human psyche.

An appreciation of multiple intelligences and an awareness of the changing nature of literacy in a new, visual culture means that teachers must adjust their practices. They must learn to cultivate the imagination as well as the intellect of their students. Jung's work on the role of symbols in history and culture can be a unique tool to do just that. Activities that incorporate an art component can be not only emotionally satisfying for students, especially for those struggling academically, but also a valuable diagnostic tool for teachers trained in their use. Literary and film studies can benefit from a Jungian approach by including a consideration of archetypes such as the "hero" and the "shadow" (the "Other" who represents the unacceptable aspects of oneself). For example, a study of the personalities and the scapegoating in William Golding's novel *Lord of the Flies* can be deepened by an understanding of Jungian psychology.

Jung's influence on the field of education has more often been indirect than direct. His pioneering effort to introduce educators to the insights of psychology can be seen in the courses now required for an education degree. His observation that the entire family unit is the locus of serious childhood problems is a fundamental tenet of family therapy. His special concern for the learning potential of the second half of life is now reflected in the proliferation of adult education courses. Jung's broadly humanistic approach, emphasizing the cultivation of the innate capacity for learning, is in contrast to the reliance on standardized testing that is characteristic of the data-driven agenda of contemporary American education.

Jay Sherry

See also Bildung; Freud, Sigmund; Multiple Intelligences: Howard Gardner; Rousseau, Jean-Jacques

Further Readings

Gardner, H. (1983). *Frames of mind*. New York, NY: Basic Books.

Jung, C. (1965). *Memories, dreams, reflections*. New York, NY: Random House.

Jung, C. (1974). *Collected works: Vol. 17. The development of personality*. Princeton, NJ: Princeton University Press.

Walsh, B. (2012, February). The upside of being an introvert (and why extroverts are overrated). *Time*, pp. 40–45.

Wickes, F. (1988). *The inner world of childhood: A study in analytical psychology* (3rd ed.). Salem, MA: Sigo Press.

ANTHROPOLOGY OF EDUCATION: MAIN TRADITIONS AND ISSUES

It is generally said that the anthropology of education, as a subfield of the discipline, began with a conference bringing together some senior anthropologists and professionals from the world of American schooling. The proceedings of this conference were published in 1955; they were edited by George Spindler, whose leadership established the field. But it is also true that anthropologists had been interested in education from the earliest days of the discipline. As they noted the variability of human ways, they began to wonder how infants with the potential to learn any language or participate in any society transform into adults with specific forms of knowledge, habits, and blinders to other forms of knowledge. Depending on the theoretical inclinations of the authors, the stress was put on psychological processes most powerfully active in the first few years of what was often labeled "enculturation."

Margaret Mead's *Coming of Age in Samoa*, published in 1928, may be considered the first educational ethnography of that early period. It inaugurated a large literature on what came to be known as "learning one's culture," and it had a massive influence on the politics and practices of American schooling. During the same period, another group of anthropologists, mostly from England, came to education because of their interest in initiation rituals, particularly when initiation involves the imparting of esoteric knowledge. From that angle, becoming a particular type of adult in any complex society with multiple roles necessarily involves explicit processes and institutions that produce internal segmentation and differentiation. In such societies, one does not learn "one's culture," since one only learns the kind of knowledge particular to one's place. Anthropologists of this tradition often write about "socialization" into "roles" and claim the French sociologist Émile Durkheim, rather than Sigmund Freud, as their inspiration.

Durkheim (1922/1956) wrote extensively about schooling and actively participated in the intellectual movements that led to the establishment of French public schools at the turn of the 20th century. American anthropologists did not deliberately turn to American schooling until the 1950s, in the wake of their success in influencing major policy decisions regarding the postwar political reconstitution of Japan. Mead had been involved in that work, and she was quite sure that anthropology could and should be applied to "the problems of our times." She had written about school teachers in the 1940s and was one of the prime movers of the conference that began the institutionalizing of the new subfield. She encouraged its establishment in the leading schools of education. Soon, at Columbia, Stanford, the University of Pennsylvania, and others, new programs attracted both young and seasoned anthropologists, students, and, perhaps most fatefully, school professionals who saw in the emerging work a powerful alternative to the then usual ways of learning about public school teaching, about students, and about thinking through how to reform schooling. Many professionals were initially attracted by the ways of knowing that anthropology took somewhat for granted. Against the experimental methods of most psychology and the hypothetico-deductive methods of much of sociology, anthropology offered "ethnography" as an inductive methodology for discovering what human beings, including schoolchildren and teachers, can do, why, and how.

The Anthropology of the Failures of American Schooling

The activist and reformist stance of the 1954 conference remains characteristic of the anthropology of education and, arguably, one of its weaknesses. By the 1960s, anthropologists, as well as some sociologists who also used ethnographic methodologies, actively participated in the elaboration of the rationales for many of the most significant policies collectively known as "The Great Society," particularly programs such as Head Start and the public television program *Sesame Street*, which looked at

schooling, or preparation for schooling, for part of the solution to the problems that had been recognized. Anthropologists soon also became the leading critics of some of these rationales, particularly when these led to policies designed to "remedy" the consequences of various "deprivations." Given that these rationales were often grounded in the work of developmental and cognitive psychologists who had hypothesized that failure in language socialization might "explain" school failure, and thus poverty, much of the anthropological work of the period developed alternate theories about, and methods for studying, the relationship of language and culture to the production and assessment of knowledge. In response to much research by psychologists and sociologists, anthropologists of education focused most of their attention on where deprivation supposedly started—they went into homes and communities, to find out how, in the details of their lives, people managed the complex interaction between local conditions, experiences in school, and eventual adult careers. For the following 30 years at least, most research and debate in the field addressed the matters of social and cultural reproduction that were driving reformist concerns.

Typical of these evolving concerns was the controversial work of a famous anthropologist, Oscar Lewis, and the subsequent critique of this work by other anthropologists. Lewis brought to his entry into public policy well-developed theories of social structure and its impact on socialization and the shaping of adult personalities. These led him to propose, in the mid-1960s, that the difficulties Puerto Ricans appeared to have in the United States had something to do with a "culture of poverty" (Lewis, 1966). Lewis had not written specifically about education and schooling, but his work resonated powerfully with many in the policy field, perhaps because it fitted well with other psychosocial theories and perhaps also, more darkly, because it fitted well with various stereotypes—as some critics charged.

In many ways, Lewis's work remains significant because it inaugurated a problematic that still guides much research in the anthropology of education. There were many versions of Lewis's hypothesis in the 1960s, most of which centered on the relationship between the language of the home, the language of the child, and the language of the school. Psychologists and sociologists proposed various mechanisms that would explain why many children have difficulty in school and how to address these

difficulties. Anthropologists generally were not so sure, and their observations in homes, schools, streets, and communities led them to propose other kinds of mechanisms. Much of this ethnographic work ended with calls to reform schooling to build on what Luis Moll (2005) eventually called the "funds of knowledge" students gain through their participation in families and communities. The first decade of this work established that what can look like disabilities in, for example, language processing when seen from the point of view of psychology may simply be the product of methodologies that make sensible responses to local conditions look like disabilities. William Labov (1982) remains famous for having demonstrated that the "silence" of Black children in the schools of the 1940s and 1950s had little to do with inner abilities or poor parenting and much to do with their relationships with White teachers. This reticence made sense in precivil rights schools, just as defiant opposition might make sense in urban schools half a century later, as noted by John Ogbu and Herbert Simons (1988).

This early research on language use in classrooms opened the way to bringing forward the difficulties of immigrant children entering school with a language other than English and then being tested on their abilities for schooling in English. Over the following decade, the focus on language processing was broadened to include concerns with "cultural" mismatches between children and schools (see, e.g., the work of Shirley Brice Heath, 1983). Even as academic anthropologists conducted a vigorous critique of the concept of "culture," it became one of the central organizing themes of proposals for school reform. As the anthropology of education became more fully integrated within reform politics in the United States, it became essential in the justification for bilingual or multicultural education, for example. Some of this new research used concepts such as social or cultural "capital," with the suggestion that the lack of such capital might explain various achievement gaps. At its best, such work escapes the problems associated with the use of "culture" as explanation. But it often collapses back into an assumption that "capital," like "culture," is a property of the individual child.

But, some argued, things are not really so clearcut. Most powerful in making anthropologists face what is troublesome about schooling and its outcomes has been Pierre Bourdieu's work on the place of schooling in the reproduction of contemporary complex societies (Bourdieu & Passeron, 1977).

Bourdieu presented strong evidence that the production of legitimated school failure is an essential feature of modern schooling and, by implication, one that is not amenable to reform in curriculum or pedagogy. Students, in this perspective, do not fail in school (and thus fail to get into the better positions of a modern society) because of either personal disability or cultural mismatches but because schools are organized to produce failure. Simply put, all recent political systems that present themselves as meritocracies, particularly when they attempt to combat all forms of birth privileges (whether based in race, ethnicity, class, gender, etc.), have given schools the responsibility of assigning merit in politically unassailable terms. Practically, this means that schools must fail most students and must ensure that the scope of failure increases as one reaches the most respected, powerful, or remunerative of positions. Many teachers are unhappy about the situation, but they are also always "agents of the state," as Michel Foucault argued. Bourdieu proposed that the mechanisms through which those who fail in school (and indeed those who succeed) include a mediating process between social conditions and outcomes. Bourdieu described this process as involving a "habitus," which he defines as a "disposition inculcated in the earliest years of life and constantly reinforced by calls to order from the group" (Bourdieu, 1970/1977, pp. 14–15). Others, such as Hervé Varenne and Ray McDermott, have argued that it is unnecessary to invoke such a mediating process and, worse, that it can lead to representing those who fail in school as ignorant and in need of remediation. This can open the way to a return to "culture of poverty" explanations. While most still eschew the phrase and use other labels, invoking habitus as explanation for school failure remains commonsensical for some anthropologists.

One alternative is to reveal how the mechanisms of school failure are produced in the moment-to-moment construction of the most routine of school sequences (McDermott & Tylbor, 1983). This approach may demonstrate the extent of what Bourdieu had called "symbolic violence" in schooling. It also insists that all people submitted to this violence have a practical intelligence that cannot be minimized. From this perspective, the problem is not that children do not learn how to read because of some internal properties or psychological deficit. The problem arises as the children are publicly identified, by an agent of the state, as not knowing how to read in a certain way at a certain time and then are treated, for future politically legitimate purposes, on the basis of this identification, however loosely related it is to the practical task at hand. Approaching schooling from this perspective has produced abundant ethnographic evidence that those who live and raise their children in the worst of conditions can talk about the barriers they encounter and act deliberately to cross them. This suggests the reality of forms of practical awareness that observers can easily miss, particularly since the forms of talk and action used by those who are characterized as failures may not correspond to their own. This opens interesting questions about what is technically called metacommunication and metapragmatics—questions that remain wide open.

Initially, the work on the tactics of the poor was presented as evidence of practical "resistance" (Willis, 1977). This work has sometimes been criticized for romanticizing the condition of the poor and oppressed. But the best of the work does not imply that resistance will be successful in reforming oppressing situations. Rather, it insists that the oppressed have, minimally, some understanding of their conditions, that they are active, and that reform does not need to proceed through the advantaged leading them through various programs designed to raise consciousness or understanding. The classical anthropological stance, one the discipline inherits from the early work of Franz Boas or Bronisław Malinowski, is that the poor, like the so-called primitives or colonialized natives, probably understand their physical, social, and political conditions better than any observer and that scholarly or policy-oriented discussion of that understanding requires an extensive period of learning from the people themselves as they produce their own lives—what came to be known as extended, systematic, "ethnographic fieldwork."

Ways of Knowing: Classic Ethnography and Its Anthropological Critics

The anthropology of education had inherited from its roots in Boasian culture theory a strong sense that the way to get to know people is to spend time with them, in the routine settings of their everyday lives. The field also inherited, from Mead perhaps more than anyone else, the sense that what one learned through the resulting ethnography was best reported in an evocative fashion, with direct statements about the application of the new knowledge

to issues current among popular audiences. Mead insisted, with a surprising amount of success, that rare if not unique practices in faraway lands would help us with a more systematic understanding of common practices in the United States that appear "natural" to humanity but can be shown not to be so. As the field evolved into what became known as "culture and personality," many anthropologists also insisted that their reports indicate how practices and patterns affected the lives of individuals. The most powerful work of that period, and one of the earlier ethnographic reports in the anthropology of education, may be a 1963 report on the travails of American adolescents in school, which Jules Henry provocatively titled *Culture Against Man.*

As Henry published his report, several lines of critique were transforming the field. These were theoretical critiques of methodology: What sort of knowledge did what kind of ethnography produce? And, most radically, did ethnographic work produce the kind of knowledge that had the very kind of practical use, and indeed political use, earlier anthropologists were convinced it had? Initially, as mentioned earlier, many feared the focus on individual suffering, when this focus led to assumptions about internalization and misunderstanding that were actually built into all cultural anthropology, as well as sociology influenced by the work of Talcott Parsons. This theoretical critique, as such, did not indicate how to modify methodologies. But new developments opened alternative routes that had not yet been systematically explored. Early ethnographic methods could not be described easily, and the work that was published appeared impressionistic. In the 1940s, Gregory Bateson, when working with Mead in Bali, had explored new techniques for recording and analysis made possible by film. These approaches did not have a mainstream impact until the entry of sociolinguists into the world of the anthropology of education. Inspired by Malinowski's late work on the analysis of texts in use, they insisted that classic issues in determining the "meaning" of linguistic forms and texts could be addressed systematically by examining how exactly words were used in practical situations. The greater availability of audio and video recorders allowed for just the kind of analyses that Malinowski and Bateson, as well as William Labov, Dell Hymes, and other figures, had called for. This led to a flourishing of what came to be known as "micro-ethnography"—often to the dismay of those who developed the techniques as a privileged

form of doing just what Mead had done: using the rare and unique to make broad points about the organization of modernity and the constraints it can place on people. Most ambitious among the early efforts may be McDermott's use of a few seconds of interaction between an Anglo teacher and a Puerto Rican child to cast doubt on the broad "explanations" of school failure that invoked "cultural mismatches."

In parallel, a more radical critique of ethnography was being developed within anthropology itself as many anthropologists challenged the very possibility of gaining systematic knowledge about human beings. Clifford Geertz (possibly the most influential American anthropologist of his generation) and his students argued that all anthropologists could do is "interpret" what they experienced in the field (Geertz, 1973). They proposed that the discipline be presented as a branch of the humanities rather than as a social science and, thereby, fundamentally challenged the Boasian position. It would be fundamentally impossible to learn about human beings in what most distinguished them from other animals—that is, in their production of symbolic means to address their environment (in other words, their "culture"). Thus, one could not discover (rather than imagine or interpret) what human beings can do. The kind of close participation and intensive observation that had been the hallmark of anthropology only produced a personal experience for the ethnographer that could not be translated into general knowledge. If so, then cultural anthropology should not be applied either internationally to issues in colonial administration and development work or, by implication, to issues of educational policy in the United States. Attempting to apply anthropology ended with the co-option of the anthropologist into the structures of entrenched power.

Anthropologists were left in a difficult position. The Geertzian critique made sense, particularly as it was developed by Michel Foucault. Many in the field started to "deconstruct" older texts in order to highlight how they were grounded in unexamined ideas about sex or gender, race, ethnicity, ability, and so on. They called for research that would be deliberately sensitive to these matters. But, like those who accepted the Geertzian critique of ethnography, they did not offer clear methodologies or techniques. Many actually began to argue that ethnography was too narrow and that what was called for was "qualitative" methodologies. But these remained very hard

to specify or justify. And their relevance to a deeper understanding of schooling, and education, could easily be questioned—as it soon was.

Recapturing an Anthropology of Education

The methodological debates sometimes eclipsed the more fundamental conversations about culture and poverty, including the cultural production of poverty and cultural productions by people caught in poverty and other difficult conditions. However, these conversations led to the reopening of a preliminary question that the rush toward policy relevance elided: What is the anthropology of education an anthropology *of*? One can also ask what a concern with social reproduction in modern societies has to do with education. Given the central role of schooling in this reproduction, it is not surprising that most research in the anthropology of education takes place in and around schools, and particularly around American schooling. It is not surprising either that the questions anthropologists ask are the very questions the people of the school ask.

The initial stance once taken by Mead remains. She and the other anthropologists who organized the 1954 conference had invited superintendents and other professionals to tell anthropologists what they needed help with. A half-century later, most research in anthropology is driven by the positionality of the people who fund it and to whom it is addressed—and these mostly consist of the people intimately concerned with the school, from teachers to administrators to policymakers in the many layers of government concerned with schooling.

The focus on American school policy is understandable, but it is also quite limiting. An early version of the critique was formulated by a historian, Lawrence Cremin, who was himself powerfully influenced by anthropologists at Columbia and particularly by Mead. Cremin was instrumental in the establishment and staffing of the program in the anthropology of education at Columbia's Teachers College. He also began to wonder what a history of education should be a history *of*? He answered decisively that it should not be only a history of schooling (Cremin, 1976). The same question is now being asked of the anthropology of education and the same answer given (see Varenne, 2007). As the earliest anthropologists had well known, it can never be a single institution that transforms an infant into a particular adult able to participate in particular positions for particular purposes at particular times, and it is never a mechanical process.

In recent years, the most powerful work moving anthropologists back to this fundamental intuition may be that of Jean Lave and her colleagues. Lave was one of the several anthropologists Michael Cole, a cognitive psychologist, brought together in his Laboratory of Comparative Human Cognition. He asked them to help him conduct a systematic critique of theorizing in cognitive psychology, particularly as it is concerned with the identification of inner psychological abilities and with learning. Given that human beings always use and reveal their cognition in the sites of their interactions with other human beings, it does not make sense to explore this cognition in isolation, apart from interaction. Taking such a stance has major methodological consequences as it requires one to research learning in the social settings where what is to be learned is used. Ethnography becomes the privileged method, and anthropology, with its long tradition of developing and critiquing the method, becomes the sensible discipline to engage in the renewal of cognitive studies, particularly as it concerns learning and, indeed, education.

Lave first went to Liberia to observe tailors and their apprentices as they dealt with complex mathematical calculations. She then went into American supermarkets to observe other people doing other kinds of calculations (Lave, 1988). Her colleagues and others started looking at midwives around the world, alcoholics, navigators, and others, as they developed complex forms of knowledge through their participation in what she called "communities of practice." The phrase was introduced in her work with Etienne Wenger (1991) and has had a controversial history when further writing, particularly by Wenger, did not quite mention that the original formulation emphasizes movement, transformation, control, and identification and was not simply pointing to a more comfortable environment for effective learning. Lave's work has contributed to the renewal of social research in general that is also being moved by the works of ethnomethodologists like Harold Garfinkel (2002) and anthropologists inspired by his work, such as Bruno Latour (2005). This emerging tradition has had a distinct impact on recent anthropology of education, particularly because it addresses the broad contexts of educational activity, including schooling, as in the work of Jill Koyama (2010), and because it offers new justifications for

ethnographic research. This work allows anthropologists to argue more systematically that schooling, with its state-prescribed curricula and pedagogies, is but a special case of universal efforts to transform conditions or to prevent the transformation of conditions. Education, these new research traditions establish, is indeed a ubiquitous phenomenon that even includes the education about schooling and its reform that is conducted not only in the centers of political power or influence but also in the familial and communal peripheries where curricula and pedagogies are discussed. To mention but one recent ethnography among many, Fida Adely (2012) has recently reported on adolescent girls in a Jordanian high school as they discuss the various forms of Islam by which they are multiply confronted. Adely's work is paradigmatic of the work of a new generation of scholars who demonstrate what can be done when one frees oneself from the narrow problematics proposed by school people to anthropologists.

This recent work is adding a significant twist to Cole's and Lave's concerns. Given their moment in the intellectual history of cognitive studies and the political history of the United States, it made sense to place their concerns under the banner of renewing the theories of "learning." It thus made sense to look at tasks like learning mathematics and syllogistic thinking, for it seems clear that one "learns" how to calculate proportions or how to navigate a boat. But it is not so clear that one "learns" Islam or Christianity or secular humanism. "Becoming" a Muslim, Christian, humanist, and so on, is more akin to entering a world of murky debates than to absorbing a worldview. It is not so much a matter of learning skills or dispositions as a matter of placing oneself in some relation with the various versions of the particular "religion(s)."

Future Directions: Developing New Ways of Knowing to Face New Challenges

When Mead went to Samoa or when George Spindler entered into dialogue with school people in America, the issues may have appeared simple. People learned their culture in everyday interaction, and enlightened professional intervention might guide this learning to build a better democracy. John Dewey had prefigured the ideological movement within which anthropological research on education easily fit.

Half a century later, things are not so clear, either on the theoretical or on the political front. Dewey's

call for an education that fosters democracy remains, but the emphasis on shaping minds and on learning is now faced with the evidence that minds are not quite so amenable to shaping and that learning is only one aspect of education. Human beings, as they transform themselves and their environments, do not simply learn. They also question, analyze, seek help, explain, attempt to convince, instruct, teach, assess, and so forth. The only plausible postulate at this moment in the history of the field is that all human beings are involved in this complex process of education, not just a few specialists. The correlate of this postulate is that education is an ongoing process throughout the life span and not only a temporary moment in life (whether the first years of life or the years of schooling). From the time an infant first encounters her parents to the time when, at the end of her life, she enters the final seconds of consciousness, the conditions, contexts, and communities she will encounter would have been changing, often in fundamental ways—whether because of war, migration, natural disasters, or (more prosaically in the world of the past two centuries) new technologies. Tablet computers, for example—like steam engines, electricity, and telephones had done—present new challenges and new opportunities for questioning, analyzing, and assessing. The challenges to the field are all the greater now that the radical critiques of ethnography have made it more and more difficult to reach the audiences that the anthropology of education, since its founding, has struggled to reach. At the turn of the 21st century, these audiences appear only to trust "data-driven" research using large "data sets" drawn from the population to whom a policy is directed. It appears fantastic that anthropologists should claim that one learns best about the most common issues in the life around us by looking systematically at rare practices in populations far removed from the ones of concern. "Policy cannot be drawn from anecdotes" is something anthropologists keep hearing from their audiences, and they have not found an effective retort. The fact that the qualitative research of the past 30 years often presents itself as reporting on the pluralities of individuals and their (in the aggregate) interpretations actually reinvigorates focus on systematic sampling and the like and also strengthens the tendency to dismiss earlier ethnographic research that had always been stronger at sketching practices, patterns, and organizations than at outlining what the individual persons living these actually experienced.

Two related responses are taking shape in the anthropology of education. They are rooted in a systematic critique of the hypothetico-deductive methods that are now again dominant. What is known as "ethnomethodology" began in the 1950s as an empirical response to Parsons and his attempts to draw grand theories of action (Parsons & Shils, 1951). The critique was led by Harold Garfinkel, who inspired a major body of work that demonstrated again and again that only careful observation of people in their routine settings could tell us anything about what human beings can do and what they actually do. In so doing, Garfinkel offered a new justification for the old Boasian argument about the special value of anthropological ways of knowing. Research inspired by ethnomethodology keeps illustrating, first, that human beings are more imaginative at adapting in environments than theoreticians—or even local practitioners—can imagine and, second, that there are systematic methods for discovering these adaptations and reporting on the discoveries. Boas made the argument cross-culturally and cross-historically; the new research is making the same argument by highlighting the multiplicities of adaptations to conditions within modernity itself. One does not need to go around the world to find the rare and the unique. One only has to look carefully at what is happening down the street, if not down the corridor. The most significant recent development in this recovery of systematic ethnography draws inspiration from the work of Latour, who showed what can be discovered by conducting ethnography in biological research laboratories or in other national elite institutions. Research such as Koyama's may lead to the moment when anthropological ways of knowing can again participate at the center of conversations about who we are, what we do, and how we might reform the patterns that make individuals suffer—at the broadest of levels.

An anthropology of education must thus be an anthropology of the deliberate attempts to face and transform conditions, whether to reproduce traditions or to produce new ones. These attempts can involve a few people in small locales, or they can involve whole populations searching for new political forms even as they attempt to reform institutions or practices that are shown not to be leading where earlier generations had hoped they would lead. In the human world of the past few 100 years, and as the ongoing experiment that is public schooling continues and spreads around the globe, it is clear that any anthropology of education will also be an anthropology of schooling that has confronted the methodological and theoretical difficulties the evolution of the field has made salient. But precisely because an anthropology of schooling is so important to our future, it must also remain encompassed by an anthropology of education.

Hervé Varenne

See also Actor–Network Theory: Bruno Latour; Communities of Learners; Dewey, John; Qualitative Versus Quantitative Methods and Beyond

Further Readings

Adely, F. (2012). *Gendered paradoxes: Educating Jordanian women in nation, faith, and progress.* Chicago, IL: University of Chicago Press.

Bourdieu, P., & Passeron, J.-C. (1977). *Reproduction in education, society and culture* (R. Nice, Trans.). Beverly Hills, CA: Sage. (Original work published 1970)

Cole, M., Gay, J., Glick, J., & Sharp, D. (1971). *The cultural context of learning and thinking: An exploration in experimental anthropology.* New York, NY: Basic Books.

Cremin, L. (1976). *Public education.* New York, NY: Basic Books.

Dewey, J. (1966). *Democracy and education.* New York, NY: Free Press. (Original work published 1916)

Durkheim, É. (1956). *Education and sociology* (S. Fox, Trans.). New York, NY: Free Press. (Original work published 1922)

Foucault, M. (1978). *Discipline and punish* (A. Sheridan, Trans.). New York, NY: Penguin Books. (Original work published 1975)

Garfinkel, H. (2002). *Ethnomethodology's program: Working out Durkheim's aphorism.* Lanham, MD: Rowman & Littlefield.

Geertz, C. (1973). *The interpretation of cultures.* New York, NY: Basic Books.

González, N., Moll, L., & Amanti, C. (2005). *Funds of knowledge: Theorizing practices in households and classrooms.* Mahwah, NJ: Lawrence Erlbaum.

Heath, S. B. (1983). *Ways with words: Language, life, and work in communities and classrooms.* New York, NY: Cambridge University Press.

Henry, J. (1963). *Culture against man.* New York, NY: Random House.

Koyama, J. (2010). *Making failure pay: For-profit tutoring, high-stake testing, and public schools.* Chicago, IL: University of Chicago Press.

Labov, W. (1982). Competing value systems in the inner-city schools. In P. Gilmore & A. Glatthorn (Eds.), *Children in and out of school* (pp. 148–171). Washington, DC: Center for Applied Linguistics.

Latour, B. (2005). *Reassembling the social: An introduction to actor–network theory*. New York, NY; Oxford, England: Oxford University Press.

Lave, J. (1988). *Cognition in practice: Mind, mathematics, and culture in everyday life*. New York, NY: Cambridge University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York, NY: Cambridge University Press.

Lewis, O. (1966). The culture of poverty. *Scientific American, 215*(4), 19–25.

McDermott, R. P., & Tylbor, H. (1983). On the necessity of collusion in conversation. *Text, 3*(3), 277–297.

Mead, M. (1928). *Coming of age in Samoa*. New York, NY: Morrow.

Ogbu, J., & Simons, H. D. (1998). Voluntary and involuntary minorities: A cultural-ecological theory of school performance with some implications for education. *Anthropology and Education Quarterly, 29*, 155–188.

Parsons, T., & Shils, E. (Eds.). (1951). *Toward a general theory of action*. New York, NY: Harper & Row.

Spindler, G. (Ed.). (1955). *Education and anthropology*. Stanford, CA: Stanford University Press.

Varenne, H. (Ed.). (2007). *Alternative anthropological perspectives on education* [Special issue]. *Teachers College Record, 109*(7).

Varenne, H., & McDermott, R. (1998). *Successful failure*. Boulder, CO: Westview Press.

Willis, P. (1977). *Learning to labor: How working class kids get working class jobs*. New York, NY: Columbia University Press.

APPLE, MICHAEL

Michael Apple is often described as the world's leading sociologist of education. He was born in Paterson, New Jersey, in 1942. He began work as a substitute teacher at age 19 and later became a teacher union organizer and political activist. Since 1970, he has worked at the University of Wisconsin–Madison and is now the John Bascom Professor of Curriculum and Instruction and Educational Policy Studies. Apple's work revolves around three main interrelated axes— (1) the cultural politics of education, (2) equity and social justice, (3) and democracy and critical pedagogy. These concerns interweave over a 40-year period from *Educational Evaluation: Analysis and Responsibility* (1974) to *Can Education Change Society?* (2013). At the heart of this work is the simple question: What counts as official knowledge? That is, on the one hand: What is the school curriculum? Who decides? Whose knowledge is taught? And how do those decisions relate to economic structures? And on the other: What is the relationship of the curriculum to the life experience of learners? And what are its implications for social equity? Thus, a considerable body of Apple's work focuses on contestations over what is to count as school knowledge. In his early work, a key point of emphasis was the complex relations between state politics and the textbook industry, which is discussed in the 1991 book edited by Apple and Linda Christian-Smith, *The Politics of the Textbook*. According to Apple, the textbook is a neglected basis for understanding how legitimate culture is defined in the classroom, particularly as the state becomes more involved in determining the types of knowledge to be taught. In more recent work, he examines commodified educational technologies and pedagogies, focusing on particular examples like the introduction of Channel One, a privately run TV news program that includes advertising, into schools. As he points out, restless capital is ever eager to exploit new market opportunities and make a profit, through the production of hardware, software, and curricular materials for home learning. This entry discusses Apple's analysis of a conservative alliance in education and its implications for equal opportunity, his commitment to democracy in education, and his emphasis on the importance of viewing school culture and policy in a historical context.

Conservative Restoration

Apple's later work undertakes a careful and complex analysis of the politics of conservative restoration, both its "residual" and "emergent" forms, and its constituent parties: neoliberals, neoconservatives, authoritarian populists, the new middle class, and the Christian right. He is very clear that this ideological formation is *built* or *constructed*. He examines the shifting alliances among these groups around educational issues and their attempts to establish a "New Right" educational common sense, or a translation of economic and religious doctrines into an *organic* ideology, and therefore to dictate public discourse around issues of race, class, and gender. This is set over and against a nuanced analysis of the crisis of the *social democratic accord*, within which government became the arena for establishing the conditions for more equal opportunity in education. He

acknowledges both the successes of the New Right, and the failures of the social democratic accord, and the ability of the right to co-opt and translate the everyday concerns of many parents into a set of simple and powerful and *popular* messages for educational reform. However, in relation to these successes and failures, he also seeks to capture and analyze the struggles, resistances, and creativity of those teachers and schools that exploit opportunities to think and act differently about education, for example, in *Democratic Schools* (with James Beane, 2000) and *The Subaltern Speak: Curriculum Power and Education* (with Kristen Buras, 2006). The struggles attended to here focus around recurrent conflicts between *person rights* and *property rights*, between equity and efficiency, welfare and responsibility—that is, "freedom to" as against "freedom from." However, these struggles, he argues, cannot be articulated at the theoretical level. Apple often refers to himself as a secretary—recording and representing the voices of those who struggle against oppression and "common sense"—a correspondent of hope. Running through this history of enacted critique, there is the "language of possibility"—the possibility of thinking "otherwise," of democracy in education, of "democratic schools," and "a democratic way of life" (Apple, 2000, p. 7). Nonetheless, as he is at pains to point out, this "language of possibility" "must also be grounded in an unromantic appraisal of the circumstances in which we find ourselves" (Apple, 1986, p. 178). He takes up the language of possibility in sustained fashion in his 2013 book *Can Education Change Society?* Critique and possibility are grounded for him within a history of struggles, that is a history of achievements as well as of defeats and setbacks. One of the things that make his work attractive to so many scholars and students is this critical opportunism—recognizing what might be done, even while remaining fully aware of the inauspicious forces of circumstance.

A Decentered Unity

Just as he is clear about the complicated and sometimes unstable alliances that make up the New Right, Apple sees the radical alternatives to this hegemonic block as what he calls a "decentered unity," a loose and sometimes uneasy grouping of counterhegemonic movements and organizations with shifting perspectives and goals, which are not immune to racist and sexist tendencies. The tensions and contradictions of policy and political interest are specified in a number of ways in Apple's analyses. For example, with Tom Pedroni, he looks at the support of Black parents in Milwaukee for educational vouchers, and more generally, in a number of papers, he considers the complexities of Black homeschooling. He is certainly not unsympathetic to the fears and aspirations of Black parents whose children are marginalized and abused in public schools, and who seek alternative possibilities for educational success, but he is also concerned about the long-term implications of such moves and policies for public schooling and the possibility of achieving a democratic education system.

Apple's work is continually grounded in "worked through" examples. In *Cultural Politics and Education* (1996), he and Anita Oliver examine the formation of a conservative agenda in one school district, making clear the contradictory complexities involved. In contrast, he has written several pieces (some with Luis Armand Gandin) on the Citizen School Project in Porto Allegre, Brazil, and the attempts to engage the local community both in local educational administration and in changing classroom practices.

Apple is often referred to as a critical pedagogue or neo-Marxist, and both labels are to a degree appropriate, but he is always willing to draw on a variety of theoretical tools and positions to achieve his analytical ends—"to think neo and post together" as he puts it. He is also clear about his debts to Antonio Gramsci, Raymond Williams, and Paulo Freire. If he is anything, he is a Gramscian: He is concerned about content; about political literacy; about political struggles in relation to common sense, practical consciousness, and hegemony (*Official Knowledge*, 2000); and about using theory to understand practice. He argues that economic dominance is "coupled" to "political, moral, and intellectual leadership." His work is founded on "concrete historical analysis" and always begins from the complexities of human experience rather than from theory. Apple's work is historical, and it represents the complex and extended processes of struggle and compromise, the temporary nature of social authority, focusing on cultural questions as well as material ones and avoiding a necessitarian logic.

Criticism and Activism

Critics from orthodox Marxism tend to focus not only on Apple's eclecticism, especially in recent

work, but also on his refusal to simplify—that is, his commitment to nuance and complexity, his emphasis on culture, his unwillingness to give straightforward privilege to class in his analysis, and his refusal to give value to abstract theory for its own sake.

It is possible to fully grasp and appreciate Apple's work only by going beyond his writing. To concentrate on the texts is to understand only part of what they represent and whom they represent. They not only present a body of careful research and incisive scholarship, they are also political interventions, irritations, and challenges. Indeed, Apple often appears in his texts: *Teachers and Texts* begins "On a trip to Washington, D.C., recently, I visited an elementary school less than a mile from the White House." He is an eyewitness to and a participant in the politics of education. He is an activist from his trade union origins to the present day. He travels widely to speak about and speak to contemporary issues. Apple's work is defined by totality and detail, sweep and grounding, theory and practice, global and local, personal troubles and public issues—the work of the *sociological imagination*, and the escape from stultifying orthodoxies. This is an ongoing project and a set of continuing struggles.

Stephen J. Ball

See also Curriculum, Construction and Evaluation of; Freire, Paulo: *Pedagogy of the Oppressed* and Critical Pedagogy; Marx, Karl; Reproduction Theories

Further Readings

Apple, M. (Ed.). (1974). *Educational evaluation: Analysis and responsibility.* Berkeley, CA: McCutchan.

Apple, M. (1986). *Teachers and texts.* New York, NY: Routledge & Kegan Paul.

Apple, M. (Ed.). (with Christian-Smith, L.). (1991). *The politics of the textbook.* New York, NY: Routledge.

Apple, M. (1996). *Cultural politics and education.* New York, NY: Teachers College Press.

Apple, M. (Ed.). (with Beane, J.). (2000). *Democratic schools.* Portsmouth, NH: Heinemann.

Apple, M. (2000). *Official knowledge.* New York, NY: Routledge.

Apple, M. (Ed.). (with Buras, K.). (2006). *The subaltern speak: Curriculum power and education.* New York, NY: Routledge.

Apple, M. (2013). *Can education change society?* New York, NY: Routledge.

APTITUDE–TREATMENT INTERACTIONS: EVOLUTION OF RESEARCH

Beginning in the 1960s and continuing through the 1980s, the educational psychologists Lee J. Cronbach and Richard E. Snow spearheaded a program of research connecting key ideas from the scientific disciplines of differential psychology, which looks at the differences among individuals and groups, and experimental psychology, which uses empirical principles and procedures. As Cronbach argued in a seminal paper addressed to the American Psychological Association in 1975, research in these two disciplines had heretofore progressed independently, with different foci and traditions, though both were contributing important understandings to the domains of teaching and learning (see also earlier writing on this topic, e.g., Cronbach, 1957, 1967). Snow had begun examining the effects of instructional treatments on performance as a doctoral student at Purdue University. He joined Cronbach at Stanford University in 1966, and together they founded the Stanford Aptitude Project to study the extent to which student performance under different instructional conditions depended on individual differences.

The culmination of that work was a scholarly book that examined and critiqued extant literature, titled *Aptitudes and Instructional Methods: A Handbook for Research on Interactions* (Cronbach & Snow, 1977). Given the stature of the authors, their reputations for exceptionally rigorous methodological critique, and the number of years they took to complete this volume, its message for ongoing research and practice in the fields of education and psychology was much anticipated. The book reported extensive evidence to support a theory about designing instructional treatments to fit different patterns of aptitude. Aptitude was defined broadly, to include any personal characteristic predictive of response to instruction in a particular educational situation (i.e., an aptitude is not limited to scores on a test of ability but can be, e.g., a work style or a personality trait). Aptitude–treatment interactions, or ATI, are the technical representations of this predictive effect; in the most general terms, studies finding ATI indicate that students with one level of aptitude perform better with a given form of instruction than those with other levels and, often,

vice versa. Although Cronbach and Snow demonstrated the ubiquity of ATI in educational experiments, the many flawed designs and methodological problems they found in reviewing the research led them to emphasize improved rigor in the handbook at least as much as substantive results. This entry discusses the research that has further developed Cronbach and Snow's ideas on individual differences in learning, how these ideas have been put to use in the classroom, and recent educational trends based on ATI theory.

Unfortunately, the anticipated practical use of Cronbach and Snow's handbook was never realized. Instead of designing more rigorous studies that might establish consistent results for given ATI hypotheses as Cronbach and Snow intended, ensuing generations of educational psychologists have, with some exceptions, abandoned the pursuit. Instead, subsequent scholarship has redefined the ATI phenomenon and design to better explicate underlying theory that might provide guidelines for teaching and instructional practice. Reconceptualizations focus on processes that occur between pre- and postexperiment assessments, both within students (aptitude processes) and treatments (instructional processes and procedures). Modern research in the tradition of ATI attempts to understand how and why different learners respond to certain instructional methods more than others: why some learners perform better, whereas others perform worse, under the same treatments. It also seeks to provide a theoretical or a conceptual framework for understanding why a specific instruction is more or less effective, given different learners' aptitudes.

Adapting Instruction to Individual Differences

The key premise of the ATI paradigm continues to be that stipulated by Cronbach in his landmark address; namely, that instruction should be adapted according to individual differences in individuals or groups of learners. However, aptitudes are now seen as "complexes," or profiles of characteristics, that account for the end state of learners. They are likewise defined as the *capacities* of learners to gain proficiency. An assumption is that learners bring to a task a unique set of propensities or aptitudes that will lead them to react in a particular way to the method and content presented in a particular instructional situation.

One of the more enduring ATI results reported by Cronbach and Snow is that learners classified as lower or higher in general intellectual ability differentially benefit from more or less structured methods of instruction. Lower-ability learners perform better when they receive a "direct" form of instruction that provides structured guidelines for completing tasks, as explained by a teacher or the task's explicit instructions. The evidence suggests that these instructions often support lower-ability learners sufficiently to reduce the cognitive burden. In contrast, higher-ability learners tend to benefit when given indirect instruction that is less structured. When asked to push harder, and "discover" key principles in primarily "learner-centered" tasks, these learners can work their way through problems independently or in concert with peers. Similar examples of ATI with more or less structured learning tasks have been reported with some affect variables such as anxiety and reactivity, and some motivational orientations, such as mastery or performance orientation (see Corno et al., 2002).

Current research focuses on explanations for results such as these, extracting consistent patterns from a variety of studies, making sharp distinctions between microlevel instructional processes, and moving interventions into natural settings. Work on the practical side seeks ways to moderate and mitigate ATI effects; one example is the professional movement to promote "differentiated instruction" (see, e.g., Tomlinson & Imbeau, 2010). Within the broader category of adaptive educational opportunities (Corno, 2008), differentiation promises a solution to the practical dilemma that teachers must instruct students as class groups at the same time that they hope to treat them as individuals within a class. One principle of differentiated practice is that there are many different hypothetically beneficial instructional approaches suitable for different learning profiles; if the teacher cannot reach students one way, another form of instruction may be tried. Differentiated instruction thus aims to capitalize on students' strengths while circumventing or compensating for weaknesses.

An important assumption of models for differentiating is that, although students vary in their readiness for learning, readiness can be developed with appropriate instruction. The concept of readiness for learning has a long history and diverse definitions. In this context, readiness is defined as the extent to which a student is prepared to learn in a given learning situation. Thus, the student's profile of learning strengths and weaknesses is used by teachers to design, customize, and adapt instruction

tailored to fit that profile in a manner that moves the student gradually toward independence.

A difference between differentiation practice and the traditional research-oriented search for ATI is that methods used to assess learning needs and establish profiles are often qualitative or captured informally by teacher observation and student work samples. ATI studies typically use quantitative indicators of aptitudes and outcomes, such as standardized assessments of ability or personality. When practitioners rely on informal assessments for differentiation, they need to have in-depth knowledge of their students—their cognitive and social strengths and weaknesses, their temperamental response tendencies, and other aptitudes—in order to gauge profiles with any accuracy. A pure approach to differentiation is seen as student-centered in the ideal, as individualized instruction matched to students' readiness to learn. But rarely is it practical for teachers to individualize instruction within a large classroom; so other forms of adaptive teaching have evolved, suggesting ways to create subgroups of students within classes with like profiles that should correspond to beneficial modes of instruction (Corno, 2008).

Recent Educational Trends Based on ATI Theory

Other trends in education and the learning sciences reflect the evolution of an ATI theory. Three important trends to emerge in recent years are Response to Intervention (or RtI), proficiency- or competency-based pathways (otherwise referred to as learning progressions), and data-driven instructional decision making (i.e., the need for teachers to use data and evidence to inform instructional decision making).

RtI focuses on identifying students who have displayed learning challenges and are at risk of failing. Its objective is to provide early interventions to those at risk through a feedback cycle of assessment, progress monitoring, and prescribed instructional interventions. The tight coupling of the feedback loop between performance/capacity assessment and instruction is a form of matching aptitude with appropriate instructional strategies. RtI comprises a tiered classification system with three levels. The first tier consists of instruction aimed at all students in a classroom or large group. The second tier focuses on instruction appropriate for small groups of students with similar specific difficulties or learning deficits (otherwise known as aptitude profiles). The third tier is individualization within the regular

classroom setting. As with differentiation, for RtI to function effectively, teachers must prescribe and adapt instructional strategies to accommodate the learning of individuals as well as groups of students.

Proficiency-based or competency-based pathways is a somewhat recent approach in which students are viewed as progressing through a continuum or pathway of proficiencies or competencies at their own rate; some authors prefer to use the term *learning progressions*. The objective in all cases is for students to acquire deeper and more lasting knowledge (longer-term retention). For this to happen, however, there must be a level of individualization or customization in which the teacher aligns the instructional intervention to the needs of students and also adjusts that intervention and pacing according to students' evolving progress toward mastery or levels of specified proficiency (Sturgis, Patrick, & Pittenger, 2011).

Data-driven decision making for instruction has been a major emphasis of the U.S. education policy since the mid-2000s. It is premised on the observation that good teachers have always used a variety of data sources from students to inform their instructional planning (observed actions and interests, work samples, verbalizations, problem solving, test performance, etc.). Today's policymakers have articulated the importance of formalizing the collection of such data sources. They also recognize that educators should learn to produce "hard," or relatively objective, evidence to inform their decisions rather than rely on their instincts or informal experiences. A philosophical shift has occurred over the past decade supporting the need to use data to inform education practice, the different kinds of data that may be most appropriate, and the purposes for which those data are to be applied. The philosophical shift is away from data being used for accountability purposes (typically summative performance measures) toward data for continuous improvement. Data for improvement align more closely with informed instructional decision making. As with ATI theory, student data may be cognitive, affective, motivational, or behavioral. The more diagnostic the assessment and the tighter the chronological coupling, the more the instruction can be tailored to the needs of individuals or groups of students.

The essential component for data-driven instructional decisions is to align the right data to the decision-making situation; the data must fit the purpose of the decision. Furthermore, the greater the number and variety of data sources, the more informed

the decision will be. For example, state summative assessments cannot provide the kinds of information a teacher needs to make informed instructional decisions about specific students and their learning needs. These tests do not have the granularity or timeliness to actually inform instruction. Such data may provide a broad picture to a school or district for comparison purposes, but they cannot provide teachers with the deep knowledge of learner strengths and weaknesses needed to prescribe appropriate instructional remediation and inspiration to students across the spectrum of aptitude. Instead, a concatenation of different data from sources and indices, such as diagnostic and formative assessments, designed classroom performance activities and work samples, and semistructured observations, can help teachers capture and appropriately adjust instruction to each learner's profile of aptitude.

Despite the beliefs of some scholars, perhaps misled by what they viewed as inconsistent results reported in the handbook of Cronbach and Snow, ATI theory has evolved and remains foundational for various forms of contemporary studies in teaching, instruction, and the learning sciences. The concept of considering the aptitude profiles of individual students and adjusting instruction to match them can, as Snow liked to say, be traced back to ancient documents from the 5th century BCE; and yet it remains an essential part of current educational practice as well. Its fundamental principles resonate in the practices and policies of modern forms of adaptation such as those we have described. This legacy should not become lost history.

Ellen B. Mandinach and Lyn Corno

See also Abilities, Measurement of

Further Readings

Corno, L. (2008). On teaching adaptively. *Educational Psychologist, 43*(3), 161–173.

Corno, L., Cronbach, L. J., Kupermintz, H., Lohman, D., Mandinach, E. B., Porteus, A. W., & Talbert, J. E. (2002). *Remaking the concept of aptitude: Extending the legacy of Richard E. Snow.* Mahwah, NJ: Lawrence Erlbaum.

Cronbach, L. J. (1957). The two disciplines of scientific psychology. *American Psychologist, 12,* 671–684.

Cronbach, L. J. (1967). Instructional methods and individual differences. In R. Gagne (Ed.), *Learning and individual differences* (pp. 23–39). Columbus, OH: Charles E. Merrill.

Cronbach, L. J. (1975). Beyond the two disciplines of scientific psychology. *American Psychologist, 30,* 116–127.

Cronbach, L. J., & Snow, R. E. (1977). *Aptitudes and instructional methods: A handbook for research on interactions.* New York, NY: Irvington.

Gersten, R., Beckmann, S., Clarke, B., Foegen, A., Marsh, L., Star, J., & Witzel, B. (2009). *Assisting students struggling with mathematics: Response to intervention (RtI) for elementary and middle schools* (NCEE 2009–4060). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides

Gersten, R., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S., & Tilly, W. D. (2009). *Assisting students struggling with reading: Response to intervention (RtI) and multi-tier intervention in the primary grades* (NCEE 2009–4045). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides

Hamilton, L., Halverson, R., Jackson, S., Mandinach, E., Supovitz, J., & Wayman, J. (2009). *Using student achievement data to support instructional decision making* (NCEE 2009–4067). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides

Mandinach, E. B., & Snow, R. E. (1999). *Integrating instruction and assessment for classrooms and courses: Programs and prospects for research* (Special Monograph). Princeton, NJ: Educational Testing Service.

Snow, R. E. (1989). Aptitude-treatment interaction as a framework for research on individual differences. In P. L. Ackerman, R. J. Sternberg, & R. Glaser (Eds.), *Learning and individual differences* (pp. 13–59). New York, NY: W. H. Freeman.

Snow, R. E. (1991). The concept of aptitude. In R. E. Snow & D. E. Wiley (Eds.), *Improving inquiry in social science: A volume in honor of Lee J. Cronbach* (pp. 249–284). Hillsdale, NJ: Lawrence Erlbaum.

Sturgis, C., Patrick, S., & Pittenger, L. (2011). *It's not a matter of time: Highlights from the 2011 competency-based learning summit.* Vienna, VA: International Association for K-12 Online Learning and Council of Chief State School Officers. Retrieved from http://www.inacol.org/research/docs/iNACOL_Its_Not_A_Matter_of_Time_full_report.pdf

Tomlinson, C. A., & Imbeau, M. B. (2010). *Leading and managing a differentiated classroom*. Alexandria, VA: ASCD.

AQUINAS AND THOMISM

Thomism refers to the philosophical positions and style of thinking to be found in the writings of St. Thomas Aquinas (1225–1274) and of those who are influenced by his manner of philosophizing and his substantive positions on philosophical issues. Thomism, or more accurately, neo-Thomism, is a variety of Thomist thought revived as a result of its official recommendation by Leo XIII in 1879 in an encyclical (papal document) titled *Aeterni Patris*. St. Thomas's system of thought and method of analysis are not, however, the exclusive preserve of those who seek to articulate and justify a Catholic philosophy of education. Thomism is also relevant to the work of philosophers who do not work within this tradition but who are prepared to engage in dialogue with it or who simply admire the cool rigor and relentless logic of Aquinas. For example, the spirit of his philosophy of education with its valorization of the life of reason and of careful argument can be found in the work of Harvey Siegel, a contemporary philosopher who is neither Catholic nor theist. The searching, analytic approach of Thomism and its substantive position on a wide range of issues can promote fruitful exchanges about the meaning and practice of education.

A brief bibliographical note is appropriate at this point. The major works of Aquinas include *Summa contra Gentiles*, *Summa Theologica*, and *De Veritate*; relevant sections from these texts can be found in Ralph McInerny's edited collection *Thomas Aquinas: Selected Writings* (1998). The philosophical positions adopted by Aquinas inform the papal encyclicals on education over the past century. In the 20th century, the French philosopher Jacques Maritain (1882–1973) was one of the most notable promoters of Thomism in the field of education, especially in his work *Education at the Crossroads*. As is clear from the short list of further readings at the end of this entry, Thomism has prompted much philosophical work relating to education over the years.

The next section of this entry deals with the general philosophical positions of Aquinas and draws largely on the *Summa Theologica*. This is followed by an overview of the implications of his philosophy for education. The third section deals with the Thomist theory of teaching and learning.

The Contours of the Philosophy of St. Thomas Aquinas

Aquinas affirms a view of human beings as part of a world that is made up of phenomena that possess objectively real natures. For Aquinas, the world has a reality that exists independently of how we perceive and understand it. He does not consider that knowledge consists in an inference from sensation; rather, he affirms the Scholastic adage that "nothing can be understood until it first appears to the senses" (*nihil in intellectu nisi quod pris fuerit in sensu*). He considers sense experience to be the starting point of knowledge and to be mediated via the intellect to constitute knowledge. Reality is thus amenable to the working of the human mind. According to the epistemology of Aquinas, the mind possesses an intuitive capacity to make the world intelligible and to attain truth.

Human beings are envisaged as rational creatures with powers that enable them to study the structure of reality, whose intelligibility is potentially susceptible of being disclosed by the exercise of their intellectual capacities. Rather than innate ideas, the mind contains the source of knowledge as a seed or germ that, at the very first contact with experience, has the power to conceive certain self-evident principles. Among these first principles, which become the bedrock of our thinking, are, for example, the notions of being or of the unity of being and the principle of causality. Virtue derives from the human capacity to grasp the ends to which human beings are naturally inclined, and the genesis of virtue is to be found in the apprehension of these ends.

Aquinas adopts the Aristotelian principle that all change is a passing from being potentially something to being actually that something. He also adopts the Aristotelian synthesis of the *four causes* and uses it to show what is necessarily involved in any development from A to B. The four causes explain the process. There must be (1) a *material cause*, answering the question "out of what"; (2) a *formal cause*, explaining the determining principle ("form") whereby we recognize the result of the change; (3) an *efficient cause*, answering the question of what effected the change; and (4) a *final cause*, the "purpose" or the "end" in terms of which the change came to pass.

According to Aquinas, a human being's highest dignity lies in her or his intellectual nature, where we find the image of God in its purest earthly form. The principal task of humankind is to think rationally and so to grow in knowledge. Accordingly, reason is human being's most important capacity, and the pursuit of truth is her or his primary and most fundamental duty. Aquinas sees love emanating from the pursuit of truth. The achievements of the will derive from the work of the intellect. For Aquinas, knowledge is not only a useful accomplishment, it is also valuable in its own right and worthy of being pursued for its own sake.

Deeply embedded in human nature is an urge to happiness in the form of a desire to achieve the goods that perfect the human being as a rational animal and especially as a social animal. This urge to be happy is a constant stimulus to action, but the ultimate impulse of human striving for happiness is to enjoy the beatific vision, that is, to participate in the life of God, where the ultimate perfection of humankind is to be found. Human striving is a search for this perfection and the cultivation of the excellence in thought and deed that leads to this state. The excellence envisaged by Aquinas represents a form of virtuosity that embraces moral virtue as well as accomplishment in all aspects of human life. Practical reason must provide guidance and judgment so that human beings may progress in all fields of human endeavor. God has given humankind many gifts to help people achieve a relative degree of excellence in these areas and to furnish them with a taste of what perfect happiness is to be like in the world to come.

After this brief overview of Thomist philosophy, the implications of this philosophy for education are explored in the sections that follow.

Aquinas, Thomism, and Education

So what then are the implications of the Thomist theory of knowledge for educational theory and philosophy? With its emphasis on clarity, rigor, and close, logical argument, the approach of St. Thomas is consistent with that of analytic philosophy as indeed is his confidence in the power of human reason. Yet Thomism differs from the latter in that it also offers a comprehensive philosophy of education based on an overarching conception of the nature and the purpose of human life that is underpinned by epistemological realism and an objectivist view of value. The analysis that is a feature of Thomist

philosophy yields a metanarrative or grand theory, that is, a comprehensive or overarching account of the nature and purpose of human life and this is not, to be sure, a feature of the work of philosophers who work within the analytic tradition. Indeed, Thomism gives expression to the classic metanarrative of Western culture. Human beings are created by God to ultimately enjoy eternal life in his company. The *telos* or end of all teaching and learning is to enable human beings to attain this ultimate state of beatific perfection.

Here, something further must be said about Thomist teleology. This is the conception of the aim of education that has traditionally informed Catholic, and other religious, versions of education and schooling. The Thomist vision of the ends of education has even been invoked in the national context by the Irish State. This vision furnished the explicit underlying rationale for the primary school curriculum from 1971 to 1999 and was given expression in the document of the Irish Department of Education titled *Curraclam na Bunscoile: Lámhleabhar an Oide, Cuid 1* (*Primary School Curriculum: Teacher's Handbook*, Part 1, 1971):

> Each human being is created in God's image. He has a life to lead and a soul to be saved. Education is, therefore, concerned not only with life but with the purpose of life. And, since all men are equal in the eyes of God, each is entitled to an equal chance of obtaining optimum personal fulfilment. (p. 12)

This statement of the aims of education was challenged as infringing liberal principles and did not appear in the document published in 1999. The new document is based on the acceptance that, in a liberal democracy, it is not appropriate for a single substantive worldview to be taught as true in every school. Nevertheless, in a democratic state, proponents of a Thomist vision of education are not obliged to embrace the relativist position that all worldviews are equally valid. Yet considerations of liberal justice require they accept that differing versions of the good may be counted as reasonable, although a Thomist would deny that they are equally compelling.

More usually, a Thomist *telos* is to be found underpinning the education provided in Catholic schools. The traditional spirit of this *telos* is well described in the fiction/autobiography of, for example, James Joyce, Simone de Beauvoir, and Mary McCarthy. Yet the irony is that today many Catholic schools in many different countries are reluctant to

define themselves in terms of a Thomist *telos*. The uncompromising statement of aims reflected in the Irish document tends to be replaced by expressions of educational aims that amount to little more than a lowest common denominator of benign aspirations.

The Dynamics of Teaching and Learning

The educational vision of St. Thomas is based on the conviction that humankind has access to the truth about life and its purpose, but Thomist pedagogy is not at all dogmatic and didactic in the traditional sense of the teacher passing on authoritative truth to passive learners. His most extensive and well-known account of the teacher–learner relationship is to be found in *De Veritate* (Q. XI, a.1), but Ryan (2009) has disclosed sources of insight into the dynamics of this relationship in his earlier work. Concern to account for the activities of teaching and learning is actually a feature of Aquinas's work from his inaugural lecture on being appointed a *magister* or university teacher. Coincidentally, the task of giving an account of the relationship between teacher, subject matter, and learner was also one that the important analytical philosopher of education R. S. Peters wrestled with, and it has assumed a significant profile in contemporary philosophy of education with consideration being given to the complex conceptual geography of notions of discipleship, apprenticeship, imitation, and identification.

At this point, it is again necessary to make some observations about Aquinas's view on the place of God in teaching and learning. Aquinas believed that God was the animating impulse behind the whole universe, but this does not detract from the persuasiveness and subtlety of his account of the relationship between teacher and pupil in the educational context. Indeed, he explicitly rejects the view, defended by Saint Augustine in his text *De Magistro*, that only God can teach human beings and that, consequently, one person cannot truly be said to teach another. Augustine argues that, although human beings can indeed speak about truth, one person cannot teach another to embrace this truth because people learn not through the words of a teacher but rather through the action of God revealing truth in the soul via created things. For Augustine, teaching is the prerogative of God alone, and one human being can do no more than alert another to what she or he already knows. But, in his text on *De Magistro* in *De Veritate*, Aquinas emphatically rejects this view.

According to the Thomist account, although God is ultimately the source of human knowledge and of the capacity to acquire this knowledge, it is perfectly reasonable to speak of one human being teaching another in the sense that one person can serve as the secondary cause of another's knowledge.

To understand how knowledge can pass from one person to another, Aquinas first considers how knowledge is acquired. As noted above, knowledge exists within human beings in the form of the seeds of elementary ideas, and accordingly, we can come to acquire knowledge without the intervention of teachers; this is called invention or discovery. If knowledge did not exist in an active rather than a passive way, then it would be impossible for someone to acquire knowledge by herself or himself. Therefore, an individual can serve both as a cause of her or his own learning as well as that of other people. A teacher, through *disciplina* (teaching), can trigger the movement from the potential that lies in the seeds of knowledge to actual knowledge. So how does this occur? This is a matter that Aquinas discusses both in the *De Magistro* section of *De Veritate* and also in two early texts that can be considered as part of his inaugural address on being appointed *magister*. These texts are known as *Rigans montes de superioribus suis* ("Watering the mountains from above, the earth will be filled with the fruit of your works," Psalm 10:13) and *Hic est liber mandatorum Dei* ("This is the book of the Commandments of God"; McInerny, 1998). So right from the outset, the reader gets a sense of the rich pedagogy of Aquinas as he draws on the resources of metaphor to explain the activities of teaching and learning. In this instance, he makes a comparison between water flowing from on high to assist in the ripening of fruit and the teacher bringing about learning in the student. The significant role exercised by the teacher in the imparting of knowledge is made further explicit in *De Magistro*, where Aquinas again has recourse to metaphor. The teacher points out to the learner the path of reasoning that she or he followed to reach her or his conclusions. The demonstrations used by the teacher could be described as tools or instruments to enable learners to understand something new. He compares the role of the teacher cooperating with the learner in communicating knowledge with the role of the doctor cooperating with nature in promoting the health of a sick person. Yet throughout the activity of teaching and learning, the ideas of the students are the basis on which all knowledge is constructed.

The teacher is a mediator of knowledge, but the primary source of this knowledge lies in the understanding of the learner. The teacher could therefore be described as one who builds on or shapes the learner's original mental construction of the world.

To conclude this section, it is important to note a comment in the first sentence of *Hic est liber mandatorum Dei*. This is a gloss on the words of Saint Augustine that themselves echo those of Cicero, enjoining the teacher to speak in order "to teach, to delight and to change; that is, to teach the ignorant, to delight the bored and to change the lazy" (McInerny, 1998, p. 5). The notion of changing highlights an integral feature of the educational philosophy of Aquinas. Knowledge and action are inextricably linked, and to say that someone knows something means that this knowledge informs the way she or he acts, a point that is echoed in the 20th century in the work of Gilbert Ryle. The implications for moral education are obvious because for a person to count as knowing how to behave means that she or he behaves in accordance with this knowledge. In a more general sense, for Aquinas knowledge is transformative because to count as knowing something the learner must internalize the knowledge, and this knowledge must inform the way she or he perceives the world. He disparages rote citation of authoritative answers because knowledge must come to life in the world of the learners. As Aquinas comments in *Quodlibet*, "If we resolve the problems posed by faith exclusively by means of authority, we will of course possess the truth—but in empty heads" (in Ryan, 2009, p. 92). Ryle's famous distinction between "knowing how" and "knowing that" is relevant here. "Knowing that" in the sense of being able to recite propositions does not count as an educationally significant achievement—learners must also demonstrate the "knowing how" necessary to fit what they have learned into an intelligible conceptual framework.

Conclusion

St. Thomas Aquinas was also very didactically aware, and his approach to teaching a text reflects a pedagogy that is as lucid and coherent as his philosophy. His approach to teaching a lesson is very structured and could indeed be commended to teachers at all levels in education. More generally, readers coming to his work for the first time will find in his approach echoes of analytic philosophy of the mid-20th century, of the close reading of texts to be found in the work of the New Criticism in poetry in the English-speaking world, and of the tradition of *explication de texte* in the French literary tradition.

For Aquinas, education is initiation into the life of reason that includes initiation into the life of virtue. He also was a committed Christian of deep and abiding faith, and his approach to philosophy and education is always informed by this faith that he conceives as entirely compatible with reason. His commitment to reason means his philosophy is not based on ideological assertion but rather on careful argument that is open to the challenge of those who hold opposing viewpoints. His philosophy of education can be said to derive from two principles: (1) commitment to clarity in reasoning and (2) openness to the force of the better argument.

Kevin Williams

See also Aims, Concept of; Aristotle; Continental/Analytic Divide in Philosophy of Education; Knowledge, Analysis of; Learning, Theories of; Maritain, Jacques; Peters, R. S.; Scheffler, Israel; Teaching, Concept and Models of; Theory of Mind; Wittgenstein, Ludwig

Further Readings

Boland, V. (2007). *St Thomas Aquinas (Continuum library of educational thought)*. New York, NY: Continuum.

Carr, D., Haldane, J., McLaughlin, T. H., & Pring, R. (1995). Return to the crossroads: Maritain fifty years on. *British Journal of Educational Studies, 43*, 162–178.

Goodrich, R. M. (1958). Neo-Thomism and education. *British Journal of Educational Studies, 7*, 27–35.

Haldane, J. (1989). Metaphysics in the philosophy of education. *Journal of Philosophy of Education, 23*, 171–183.

Maritain, J. (1943). *Education at the crossroads*. New Haven, CT: Yale University Press.

McCauley, H. C. (1977). The teaching-learning relationship: A Thomist perspective on the *Standard Thesis*. In J. McEvoy (Ed.), *Philosophy and totality* (pp. 63–89). Belfast, Northern Ireland: Queen's University.

McInerny, R. (1998). *Thomas Aquinas: Selected writings*. London, England: Penguin Books.

Ryan, F. (2009). Teaching to think: St. Thomas as pedagogue. *Yearbook of the Irish Philosophical Society, January*, 92–104.

Williams, K. (2009). Vision and elusiveness in philosophy of education: R. S. Peters on the legacy of Michael Oakeshott. *Journal of Philosophy of Education, 42*(Suppl. 1), 223–240.

Arendt, Hannah

Hannah Arendt (1906–1975) was one of the most influential political philosophers of the 20th century. Born in Germany to a Jewish family, she studied philosophy with Martin Heidegger at the University of Marburg. She was forced to emigrate when Adolf Hitler's National Socialist Party took power in 1933. After spending the next eight years in France, she immigrated to the United States in 1941, where she became a major part of a vibrant intellectual community. Arendt's major works—*The Origins of Totalitarianism* (1951), *The Human Condition* (1958), *On Revolution* (1963), and *Eichmann in Jerusalem* (1965)—dealt with philosophy, politics, and history.

Arendt wrote comparatively little about education and the philosophy of education. Apart from a couple of essays titled "What is Authority?" and "The Crisis in Education" in her book *Between Past and Future* (1977), she made relatively few references to this topic in her other works. However, a close reading of these two essays in the context of her major works suggests that Arendt's views on education developed out of two central threads in her thinking: (1) a traditional conception of authority and (2) her existential convictions. The result is a distinctively conservative approach to education, which she described in "The Crisis in Education":

> To avoid misunderstanding: it seems to me that conservatism in the sense of conservation, is of the essence of the educational activity, whose task is always to cherish and protect something—the child against the world, the world against the child, the new against the old, the old against the new. Even the comprehensive responsibility for the world that is thereby assumed implies, of course, a conservative attitude. (Arendt, 1977, p. 192)

Arendt's point is that adults need to preserve the world from the hands of the young, who might destroy parts of it if left to their own devices. To preserve this human world against the mortality of its creators means to constantly renew it so that it can provide a permanent home for succeeding generations who will inhabit it. This point is reminiscent of the mainstream conservative argument that holds that society and tradition are to be preserved by imparting to the young the worthy values and great ideas of the past. Yet Arendt also presents a stronger argument: that conservatism in education implies a willingness on the part of adults to protect the young from the world (i.e., from social conventions), which seeks to suppress the new and revolutionary in every child. Unlike mainstream conservative approaches that often ignore the fresh possibilities that newborns bring into the world, she insists that educators must cherish and foster them. For Arendt, perhaps the most important and difficult problem in education is how to preserve the new and revolutionary in the child while simultaneously conserving the world as a permanent home for human beings.

In Arendt's view, education involves a unique triadic relation among educators, the world, and our children, in which it is the educator's task to mediate between the latter two. Such a relation, she believes, is based on adults' authority and their desire to preserve both the world and the young. In education, it is precisely the authority relation and its corresponding conservative attitude that make room for renewal and innovation. Renewal and innovation are contingent on the young coming to know the world; only adults, because they are already familiar with the world, can teach children about it. Education, she argues, is worthwhile when the conservative and the revolutionary go hand in hand, when we preserve the past for the sake of the new:

> Exactly for the sake of what is new and revolutionary in every child, education must be conservative; it must preserve this newness and introduce it as a new thing into an old world, which, however revolutionary its actions may be, is always, from the standpoint of the next generation, superannuated and close to destruction. (Arendt, 1977, pp. 192–193)

This last point should be underscored on the grounds that Arendt is one of the few modern thinkers who insist that in education we must be conservative for the sake of the new. She is not arguing, as mainstream conservatives have, that children should be taught the great works of the past because of their important educational insights and relevance for our lives. Rather, she is claiming that the past and the relation of authority are essential to help children realize their potential for creating something new. Without being taught the classic works of tradition, children would not have the basic knowledge needed to change and renew the world. And without adults assuming responsibility for the common world and guiding the young in it, children would not have the security needed to operate adequately in a rapidly changing world. In Arendt's view, the most important goal of education is to help children become

familiar with the world and feel secure in it so that they may have a chance to be creative and attempt something new.

Yet what distinguishes Arendt's conception of educational authority is not merely the idea of preserving the past for the sake of the new. No less important is her emphasis on human action and the fact of natality on which action is ontologically based. Natality refers to the reality that each child has the potential to initiate something new in the world by virtue of the fact that "with each birth something uniquely new comes into the world" (Arendt, 1958, p. 178). The fact that birth constantly brings newcomers, who are not only beginners but also unique into our world, means that the unexpected can be expected from them. It means that the young can intervene in the ordinary course of events and initiate radical changes in society. According to this view, education should be aimed at preparing the young for a life of action—for a life of involvement in and transformation of the world:

> Education is the point at which we decide whether we love the world enough to assume responsibility for it and by the same token save it from the ruin which, except for renewal, except for the coming of the new and young, would be inevitable. And education, too, is where we decide whether we love our children enough not to expel them from our world and leave them to their own devices, nor to strike from their hands their chances of undertaking something new, something unforeseen by us, but to prepare them in advance for the task of renewing a common world. (Arendt, 1977, p. 196)

Thus, Arendt believes that education should be aimed at preparing the young for taking responsibility for the world. Yet this responsibility does not mean clinging to traditional morals or returning to a "golden past," as mainstream conservatives advocate. Rather, it means preparing our students for action, that is, for intervening in the world and creating a more humane society. Arendt thinks that education is ideally a space that can help students prepare for taking responsibility for the world by providing them with the kind of information and skills (e.g., moral reasoning) that they will need to become informed and engaged citizens in a democratic society.

Mordechai Gordon

See also Dewey, John; Heidegger, Martin

Further Readings

Arendt, H. (1951). *The origins of totalitarianism.* New York, NY: Harcourt Brace Jovanovich. (3rd ed. with new prefaces, 1973)

Arendt, H. (1958). *The human condition.* Chicago, IL: University of Chicago Press.

Arendt, H. (1961). *Between past and future.* New York, NY: Viking Press.

Arendt, H. (1963). *On revolution.* New York, NY: Viking Press. (Rev. 2nd ed., 1965)

Arendt, H. (1965). *Eichmann in Jerusalem: A report on the banality of evil* (Rev. enlarged ed.). New York, NY: Viking Press.

Arendt, H. (1977). *Between past and future: Eight exercises in political thought* (Rev. ed.). New York, NY: Penguin Books.

ARISTOTLE

The educational ideas of the Greek philosopher Aristotle (384–322 BCE) have been widely influential across the ages but since the 1980s especially so with regard to moral and civic education, and flourishing as a goal of education. Aristotelian ideas about practical reason and friendship have also had considerable influence in philosophy of education. This influence has been not only facilitated by a wider revival of scholarly interest in Aristotle's philosophy but also shaped by the related emergence of the virtue ethics movement in moral theory and communitarian movement in political theory. This entry briefly reviews Aristotle's life and works and then discusses the central elements in his philosophy of education.

Life

Aristotle was born in the town of Stagira, in Chalcidice, between the Balkans and the Greek peninsula. His father, Nicomachus, was physician to the Macedonian court, a circumstance influential in Aristotle's own lifelong ties to it. At the age of 17, he began 20 years of study at Plato's Academy in Athens, until the latter's death in 348/347 BCE. Perhaps owing to political difficulties arising from his Macedonian connections, Aristotle then left Athens for Assos and Mytilene, where he is thought to have done much of the detailed fieldwork on which his biological works were based. At the invitation of Philip II of Macedon, he returned to Macedonia in 342 BCE where he was tutor to Philip's son, the

young Alexander the Great. Returning to Athens in 335 BCE, he founded his Peripatetic school or *Peripatos*, named after its site, the *peripatos* (probably a colonnaded walk) of the monumental public gymnasium at the Lyceum—a sanctuary established for the worship of Apollo the wolf slayer (*Lykeios*)—but already by the late 5th century, it became a place of leisure (*scholê*) and higher learning favored by Sophists, Socrates, and young men who came to exercise and listen. There he collaborated with colleagues in systematic research on an astounding array of topics; founded several disciplines, including zoology, logic, and political science; gathered a library of documents and research materials without precedent in the Greek world; invented scientific prose and oversaw its voluminous production; and led other members of the school in teaching students of diverse philosophical and family backgrounds. The death of Alexander in 323 unleashed anti-Macedonian feeling, which forced Aristotle to withdraw to his mother's estate in Chalcis. He died there in 322, leaving his library to Theophrastus and expressing a preference that the latter should succeed him as *scholarch* or head of the Peripatetic school.

Works

Aristotle's surviving writings are numerous and remarkably wide ranging, yet these are only a fraction of what he produced. A list of his writings compiled in the years after his death, when many were in use at the Lyceum and widely in Alexandria, include a history of Athenian dramatic performances, constitutional histories of 158 states (of which only the history of Athens has survived intact), and dialogues praised by Cicero (106–143 BCE) for their eloquence. The collection left by Theophrastus was brought to Rome after the fall of Athens in 86 BCE and was edited there between 70 and 20 BCE by the Peripatetic philosopher, Andronicus of Rhodes, who grouped many of the books (papyrus rolls) into treatises. This has served as the basis for all subsequent editions of Aristotle's works, and most of what Andronicus considered important has survived. It is widely accepted that the books comprising these surviving works are lectures or compilations of notes that Aristotle had not prepared for publication. The works form a deeply interconnected whole, but they are conventionally organized into distinct philosophical categories: *logic* or the "*Organon*" (works constituting the "instrument" or tools of philosophical inquiry); *metaphysics* (concerning being, substance,

matter and form, etc.); *natural philosophy* or "physics" (concerning everything in the natural world, both inanimate and animate, hence everything from physics in the modern sense, to meteorology, the movement and parts of animals, and dreams); *political science* (comprising ethics and "legislative science"); *rhetoric*; and *poetics*.

It is principally in his *Nicomachean Ethics* and *Politics*, works which present themselves as an ordered pair comprising political science (*hê politikê epistêmê*), that Aristotle addresses education, though even in these works, the direct remarks about education are brief except in the final book (VIII) of the *Politics*. His purpose there is to argue that schooling should be publicly provided and the same for all citizens and to provide a general account of the aim and content of such schooling. There is no sustained discussion of higher education in the extant works, but important features of Aristotle's conception of it can be inferred from scattered passages in his works and from independent testimony concerning the practices of his school.

The Idea of a "Universal" Education

Aristotle says in *Politics VIII* that the primary concern of education is to cultivate a capacity to form good or correct judgments and (what is closely related so far as *moral* judgments are concerned) a disposition to take pleasure in admirable human dispositions and actions. His work, *On the Parts of Animals*, opens similarly with the claim that to be educated is to be able to form a sound judgment of an investigation or exposition, a person of "universal" education being one who is able to do this in all or nearly all domains of knowledge. The ability to make sound judgments for oneself is a defining aim that unifies education at all levels, but *Politics VIII* is concerned with a stage of education in which the development of good judgment is strongly linked to the formation of moral dispositions, whereas *Parts of Animals I* is concerned with the principles by which the soundness of inquiries and expositions in a domain of higher learning (zoology) might be judged—principles Aristotle had devised and was in that very lecture preparing to impart. He evidently believed that to be educated in a field of study is to master its principles of inquiry and to be able to make sound judgments for oneself of matters within its sphere of competence. He furthered such mastery and ability in zoology and other sciences not only by focusing his students' attention on the principles

but also by encouraging involvement in investigations. Unlike Isocrates's school of rhetoric, in which a solitary master dispensed instruction to students for a fee, the *Peripatos* was an informal community of "friends" (*philoi*) engaged—in varying proportions—in research, instruction, and learning, without fees or contractual obligations. The collaborative nature of research in this setting is consistent with Aristotle's remark at the opening of *Metaphysics II*, that everyone has the capacity to contribute something to finding the truth, while no one can succeed adequately except as part of a larger, collective effort.

The students who heard the lectures constituting Aristotle's *Nicomachean Ethics* were told similarly at the outset that their experience of human conduct and familiarity with ethical facts would provide the starting points for a process of inquiry culminating in a systematic, reasoned body of ethical knowledge (*epistêmê*)—the ethical *knowledge* required for *phronêsis* (practical wisdom or excellence in judging what to do). Aristotle announces his practical philosophy as a science and a field of higher learning, and here, as in other educational domains, the overarching aim is the development of a form of good judgment.

Aristotle's understanding of the basis for sound judgment in a domain of knowledge is closely related to his conception of a science (*epistêmê*) as consisting of a structure of "first principles" and theorems derived from those principles, the first principles being necessary and defining truths of the natures of things in the domain. Understanding (*nous*) of first principles must begin in perception and memory of particular objects (*particulars*) and proceed through a unification of memories to general or universal suppositions about similar objects and, finally, analysis of *universals* or clear understandings of a common nature or essence. Grasping a science's first principles and what follows from them enables one to understand the causes of things in the domain.

Aristotle remarks at the opening of *Metaphysics I* that such understanding or knowledge is required to teach any art (*technê*, or craft), and the teaching of any science or art will naturally aim to cultivate such understanding or knowledge. An obvious consequence of his view that understanding and knowledge are rooted in perception is that teaching must build on or provide experience of relevant objects. What he emphasizes, however, is that experience or knowledge of individual objects is only a first step toward the grasp of universals and grasp

of inferential and explanatory relations essential to scientific knowledge and the mastery of any art. A "manual" worker may learn by experience or guidance from a master yet lack the master's scientific or theoretical understanding, and for that reason be unable to rely on his own judgment and achieve consistent success in the variety of circumstances that arise.

Aristotle did much to advance this ideal of "universal" sound judgment or wisdom both personally and through the activities of his Peripatetic school, but the relationships between this ideal and the educational aims referred to in *Politics VIII* are not entirely clear. These aims pertain to the roles of the virtues, including theoretical wisdom (*sophia*) and practical wisdom (*phronêsis*), in flourishing lives and just political communities. It is not clear that either of these forms of intellectual virtue requires mastery of *all* domains of knowledge.

Liberal Versus Illiberal Education

Aristotle says in *Politics VIII* that education is not a preparation for paid employment, but for leisure devoted to intellectual activity. Greek education in *gymnastikê* (athletics) and *musikê* (music, poetry, and narratives—the "Arts of the Muses") was from the beginning a preparation for leisure, and it had remained so in large measure with the introduction of group lessons, but Aristotle (largely following Plato) reinterpreted this education as preparatory to the particular use of leisure he thought most admirable and satisfying. He allows that children should be taught useful things that are truly necessary (referring to reading and writing, gymnastic exercises, and drawing), but not so much of these useful things as to interfere with the development and exercise of virtues (*arête*, excellence, and goodness)—the virtues of thought no less than moral virtues. Dividing occupations and arts into the *liberal* (*eleutherios*, free) and the *illiberal* (*aneleutherios*, unfree), he advocates teaching the former only, and doing so only to a *degree* consistent with the exercise of virtue and with the *object* of cultivating the virtues foundational to living well and happily. Education in musical performance is defended at some length as liberal insofar as (a) the music contributes to moral development by imitating good character and producing delight in its apprehension, (b) the resulting appreciation of what is good provides the basis for good *judgment of* musical performances later in life, and (c) the selection of instruments and mode of

instruction aim at the student's own "improvement" and not to please an audience with feats of virtuosity, as a paid performer would be expected to do.

Like other 4th-century writers, Aristotle treats what is *illiberal* or not free as synonymous with what is "banausic." The Greek term *banausos* designates an artisan whose work is "manual" or involves use of the hands, but it is pejorative and expressive of the prejudices of a leisured elite in implying subservient catering to others through commercial exchange, hence a kind of dependence or lack of freedom. Beyond such dependence, all paid employments are "banausic" and illiberal according to Aristotle, because they "absorb" and "degrade" the mind (undermining the freedom to guide oneself by one's own good judgment). In conceiving of a public system of day schools in which all citizen children receive the same education together, yet receive no education preparatory to paid employment, Aristotle has in mind a society in which citizens are primarily land owners who manage their farming households but are not personally engaged in the manual labor of farming.

We should be able to use leisure well, Aristotle says, and there are branches of learning that should be valued for themselves and studied with a view to spending leisure in intellectual activity. He refers to music as providing intellectual enjoyment in leisure and seems to regard it as providing occasion for the contemplation of human goodness and beauty, but the branches of learning he has in mind are more generally ones in which theoretical wisdom or *sophia*, the highest human virtue, is exercised in *theoria* or contemplation of the best or "most estimable" objects of knowledge. "Best" may mean divine, and human excellence may qualify as divine, but the musical inducement of contemplation of such excellence would not constitute an exercise of *sophia* without a grasp of the universals of human goodness grounded in ethical science.

Aristotle argues in *Nicomachean Ethics I* and *X* and *Politics VII* that the happiest life for a human being is one that makes theoretical contemplation its highest end. A person might have a happy life by devoting himself to political affairs, engaging in activity that suitably exhibits the virtue of *phronêsis*, but the life devoted to intellectual activity exhibiting the virtue of *sophia* is happiest and complete in itself. Happiness or *eudaimonia* is a human being's natural highest end, and the activity of politics—a *productive art* (*technê*) aiming at something beyond itself—cannot qualify as a highest or ultimate end,

Aristotle argues. The view that emerges is that a liberal education should be valued as a direct contribution to human flourishing; it prepares students to engage in intellectual activity that is inherently admirable and rewarding, activity that expresses or constitutes human flourishing or *eudaimonia*.

Aristotle regards moral virtue as an *internal* psychic requirement of a happy life, and his reason for doing so is important to understanding the progression of education from moral habituation to the exercise of wisdom essential to a happy life. According to the *unity of virtue* doctrine elaborated in *Nicomachean Ethics VI*, sound judgment both presupposes and completes the moral virtues; no one can develop sound judgment without first possessing natural or habituated forms of all the moral virtues, and no moral virtue becomes a *true* virtue unless habituation through guided practice is followed by teaching that leads to sound judgment. A happy life is occupied with the most suitable exercise of *sophia* or *phronêsis* and, therefore, requires the possession of sound judgment. Sound judgment is only possible if one perceives the world accurately in its various ethical aspects, and it is what we do and practice that shapes the cluster of dispositions that constitutes a habituated moral virtue—what we desire, take pleasure in, and *perceive* as good.

Education, Justice, and the Human Good

Aristotle begins from the idea that all human beings desire to live well or happily, and he conceives of a just society as one that is designed to enable everyone to live well. Believing he has shown that the life that makes theoretical contemplation its highest end is the uniquely best life for human beings, he holds that a *polis* (politically autonomous city) is properly a partnership in living this *best* kind of life. The *polis* described in *Politics VII* and assumed in *Politics VIII* is the one Aristotle says is the best that is possible in highly favorable circumstances, a city in which every (free, male) citizen possesses true virtue and cooperates with others in leading a flourishing life. (Aristotle says at one point that women, being half the citizens, should be educated, but he offers no specifics, and there are only references to sons and boys being educated in *Politics VIII*.) The *Politics* offers not only ideals and best possible arrangements but also a conception of the most just arrangements feasible for most societies and systematic guidance for improving all kinds of regimes. A clear message in this is that any society that aspires to be just will

endeavor to provide its citizens with what they need in order to live well and cannot provide themselves, notably, the education foundational to living well.

Politics VIII opens by observing that education should be of paramount concern, and the same education should be provided to "all" through a public system, not only because the city has one common end (living the best life), and the fulfillment of this end through activity expressing virtue requires prior "education and habituation," but also because it matters to the quality of the constitution (how a society functions as a political community). Because the best constitution achievable by most societies is institutionally a stable, consensual rule of law providing representation and powers to all classes, and one that is dominated by a large middle class in a way that prevents polarization and encourages cooperation, education serving the quality of the constitution would promote equality, civic friendship, and the moral and intellectual virtues essential to productive participation in collective self-governance. Education serving just civic purposes in such ways remains *liberal*, because the virtues of citizenship that are inculcated are no different in kind from those any human being needs to live well, and cooperating in collective self-governance is not servile.

Randall Curren

See also Knowledge, Structure of: From Aristotle to Bruner and Hirst; Liberal Education: Overview; MacIntyre, Alasdair; Paideia; Phronesis (Practical Reason); Plato

Further Readings

Barnes, J. (Ed.). (1984). *Complete works of Aristotle.* Princeton, NJ: Princeton University Press.

Carr, D., & Steutel, J. (Eds.). (1999). *Virtue ethics and moral education.* London, England: Routledge.

Curren, R. (2000). *Aristotle on the necessity of public education.* Lanham, MD: Rowman & Littlefield.

Curren, R. (2010). Aristotle's educational politics and the Aristotelian renaissance in philosophy of education. *Oxford Review of Education, 36,* 543–559.

Kraut, R. (2002). *Aristotle: Political philosophy.* Oxford, England: Oxford University Press.

Kristjánsson, K. (2007). *Aristotle, emotions, and education.* Aldershot, England: Ashgate.

Lynch, J. (1972). *Aristotle's school.* Berkeley: University of California Press.

Nightingale, A. W. (2001). Liberal education in Plato's *Republic* and Aristotle's *Politics.* In Y. L. Too (Ed.), *Education in Greek and Roman antiquity* (pp. 133–173). Leiden, Netherlands: Brill.

Reeve, C. D. C. (2006). Aristotle on the virtues of thought. In R. Kraut (Ed.), *The Blackwell guide to Aristotle's Nicomachean ethics* (pp. 198–217). Oxford, England: Blackwell.

Sherman, N. (1989). *The fabric of character: Aristotle's theory of virtue.* Oxford, England: Clarendon Press.

White, J., & White, P. (1986). Education, liberalism and human good. In D. Cooper (Ed.), *Education, values and mind: Essays for R. S. Peters* (pp. 149–171). London, England: Routledge & Kegan Paul.

ARNOLD, MATTHEW

Matthew Arnold (1822–1888) was among the most important public intellectuals in 19th-century England. A renowned poet, he held the post of Oxford Professor of Poetry and was a preeminent cultural critic of the time, one whose works continue to be read today. It is less well known that he was also an educational reformer with wide practical experience as an inspector of schools and author of official reports on foreign education. Arnold's theory of education centers on the idea that "culture" must be regarded as the normative social value and that acquisition of culture must be extended across class divisions by state-supported schools. In the long debate between proponents of science-based and literature-centered education, Arnold was a leading voice for the value of the humanities. A theorist of high culture and liberal arts education, Arnold at the same time advocated egalitarian, modern schooling for the nation. His ideas remain contentious in current debates over cultural theory and education. Because both his philosophical and practical interests in education begin with the idea of culture, in a nonanthropological sense, it is important to grasp his understanding of the term.

Culture

Arnold's most widely read volume is titled *Culture and Anarchy* (1869/1994). In it, he argues that without "culture" 19th-century social transformations in class relations, economic distribution, and social status will inevitably lead England into "anarchy." Although he rarely defines a term without using concepts that themselves require definition, Arnold means by *culture* the knowledge, understanding, sensitivity, and good taste that comes from

the elite, classical education provided by the great public (i.e., private) schools like Eton and Harrow and thereafter by the Oxbridge universities. But culture is not exclusively the province of the privileged. In his familiar words, culture is the quality of "sweetness and light." It is the critical ability to "see things as they really are," and it derives from sustained exposure to the "best that has been thought and said." Culture is the quality of an educated and cultivated mind that connects present ideas to those that have gone before, an inner, dynamic growing of mind and spirit toward greater "perfection." Arnold saw the opposite of culture in his age's faith in what Thomas Carlyle, his near contemporary, called "machinery": the utilitarian devotion to material goods and aspirations. Against this tendency of his day, Arnold called for the expansion of culture, or sweetness and light, into the worlds of commerce, politics, economics, literature, art, and education.

Class

Like Thomas Carlyle and John Stuart Mill, Arnold addressed the central issue of his time: the form English society would take in a period of dramatic change. The ascendancy of the middle classes over the rule of the aristocracy and the agitation of the lower classes for industrial regulation and democratic participation left traditional social and political structures unsettled. Arnold's analysis broke the social classes into three groups, each of which occupied a cultural and educational niche. At the top of the social hierarchy was the aristocracy, whom he called the "barbarians." Staunchly individualistic, with an educated "exterior culture" of refined behavior and tastes, at their best, they represented the conduit for genuine culture; at their worst, they were indolent and self-indulgent. The other end of the social spectrum was occupied by the "populace," or laboring classes. Poorly educated and without culture, as Arnold defines it, they were a social and political challenge for the democratizing country. But Arnold's attention was primarily focused on the education of the middle classes, whom he called the "Philistines." Including professionals, financial people, manufacturers, shop owners, clerks, and civil servants, who were living "dismal and illiberal" lives, this class was perversely resistant to light. To him, the middle classes were so immersed in the material world of success, acquisition, and advancement ("machinery") that they could not apprehend the value of culture. They therefore had little

capacity for the kind of leadership that could benefit the nation, and in fact, they might be a danger to it. This rising ruling class had to be enabled to make judgments based on the "best that has been thought and said."

Education

Arnold traveled the country as inspector of elementary schools and knew firsthand the condition of education in the nation; he was especially interested in creating a system of state schools for the middle classes. If the workers were to rise into a ruling middle class, there had to be a system of state-established secondary schools to ensure a "civilized middle class to rise into." Education at the great public schools was generally reserved for the gentry and aristocracy, and only a few of the top middle-class families were admitted. But the rest of that class, he said, were the "worst schooled" in Europe. Even where he found education, it consisted mostly of information devoted to the purposes of commercial and material utility. He proposed to remedy those deficits, especially the lack of humanizing ideas, culture, and moral ideals, by turning to France's example: a national system of state schools that kept costs moderate while providing a good education to the middle classes. These schools, as Arnold envisioned them in England, would provide students access to what is "really human." They would link the middle classes to the best culture of their nation, connect them to the great institutions of learning, and "fuse" them with the classes above, creating a common culture. The educational rapprochement between the classes would provide students contact with higher standards, preserving the middle class from a vulgar tendency to overrate their "inferior" culture. Finally, impartial state schools would reduce sectarianism in education. State secondary schools, in other words, could remove those liabilities that, to Arnold, made middle-class ascendency a danger.

Curriculum: Science Versus Literature

For several decades after the middle of the century, a vigorous debate ensued over the question of whether a science curriculum or the study of literature should be central to school reform. The foremost apostle of culture, Arnold, was attacked for denigrating instruction in the sciences and for advocating an outdated classical, belles lettres curriculum. Among his critics, Charles Darwin's defender, Thomas Huxley, acknowledged that Arnold was not entirely

opposed to science education but maintained that he accorded too much privilege to literary studies. Arnold responded that a basic knowledge of science was necessary but insufficient. It is human nature, he argued, to want to connect knowledge with our own conduct and appreciation of beauty, with our moral understanding and aesthetic sensibilities. Science cannot provide this connection, while literature, or the humane letters, from all ages of human history can engage the heart, refreshing, fortifying, and elevating us. It is only poetry that can "interpret life for us."

Making accessible civilization's best interpretations of life is to Arnold the task of the discerning "critic." The critic, setting aside all practical and transient considerations, assesses cultural value on the basis of great works that serve as "touchstones," or standards, for evaluating other works. Education acculturates the young to those standards, aligning judgment with established values. Arnold's educational theory is a part of his larger social criticism: Normative culture, spread by education and maintained by evaluative criticism, preserves the identity and cohesion of the nation and stabilizes its class structures.

Critics and Legacy

Arnold's ideas encountered spirited response. One of his most skeptical contemporary critics, Frederic Harrison, charged that the problem with Arnoldian culture was that it stood aloof from the misery of the world, and the view of Arnold as removed from the raw conditions of English life was common. Other critics commented on his refusal to define and specify terms, on his lack of attention to practical politics, and on his turning to the Continent for ideas and models. Skeptics notwithstanding, Arnold takes his place in a lineage of criticism beginning with Samuel Coleridge, William Wordsworth, and Thomas Carlyle and continuing with T. S. Eliot's "The Modern Element in Literature," F. R. Leavis's *The Great Tradition*, Mortimer Adler's "Great Books" curriculum, Lionel Trilling's liberalist criticism, E. D. Hirsch's search for a common culture, and the core knowledge movement in schools. In recent cultural politics, these generally represent ideologically conservative positions. Cultural criticisms from further left take exception to Arnold on the grounds that his idea of culture represents the hegemonic elitism of middle-class liberals. The Marxist critic Terry Eagleton charges Arnold with

the erroneous historicism of regarding a class ideology as a legitimate worldview. Postcolonial critic Edward Said argues that Arnoldian values constitute a link in a chain binding one group together while banishing the outsider. However it is viewed, Arnold's "culture" remains a point of contention in critical debates over educational theory and cultural politics.

Nicholas Preus

See also Adler, Mortimer, and the Paideia Program; Cultural Literacy and Core Knowledge/Skills; Mill, John Stuart; Newman, John Henry (Cardinal); Spencer, Herbert

Further Readings

Arnold, M. (1961). Literature and science. In A. D. Culler (Ed.), *Poetry and criticism of Matthew Arnold* (pp. 381–396). Boston, MA: Houghton Mifflin. (Original work published 1882)

Arnold, M. (1994). *Culture and anarchy* (S. Lipman, Ed.). New Haven, CT: Yale University Press. (Original work published 1869)

Connell, W. F. (1999). *The educational thought and influence of Matthew Arnold*. London, England: Routledge.

Super, R. H. (Ed.). (1960–1977). *The complete prose works of Matthew Arnold* (Vols. 2 & 4). Ann Arbor: University of Michigan Press.

ASSIMILATION

Assimilation, in common parlance, refers to a unidirectional and linear process that occurs when one group assumes the dress, speech patterns, tastes, attitudes, and, perhaps, most important, the economic status of the dominant group. However, in recent years, this perspective has been challenged. Newer theories of assimilation highlight the impact of structural- and individual-level factors and different outcomes for assimilation among immigrant and host groups.

Classic Assimilation: Robert Park and the Melting Pot

The earliest version of the assimilation model is that of classic assimilation. The key assumption of this perspective is that there is a gradual but natural process by which diverse ethnic groups come to share

a common culture. Assimilation, however, is seen as a subtractive process in which immigrants lose ethnic/national characteristics to be absorbed into the dominant mainstream culture. From this viewpoint, it is the dominant group that sets the terms of what it means to be assimilated. The process is deemed irreversible but also considered to be extremely beneficial to the newly assimilated immigrants.

The sociologist Robert Park was one of the first researchers of immigrant communities in the United States in the 1920s (and a Jewish immigrant himself). Park is responsible for two key ideas within the classic assimilation camp: (1) the melting pot metaphor and (2) the concept of marginal men.

Park (1928) believed that every society was to some degree a successful melting pot where diverse populations were merged, acculturated, and eventually assimilated, albeit at different ranges and in different ways. He proposed a four-stage "race relations cycle" that began with contact and moved into competition (in terms of both economics and new social organization). The third stage suggested a period of accommodation, but ultimately, men and women would assimilate into the dominant group—the final stage of the cycle. This is from where the "melting pot" metaphor arises.

Despite this straight-line assimilation trajectory, Park maintained that immigrants were often "marginal" men and women; that is, they found themselves between two cultures. For Park, marginality implied conflict not only between cultures but also between social innovation and cultural sophistication. Compared with the "indigenous" person, the marginal person according to Park was "the individual with the keener intelligence, the wider horizon, and the more detached and rational viewpoint" (Park, in Stonequist, 1937/1965, pp. xvii–xviii). However, it is the more negative aspect of marginality that has dominated the immigration debate, in great part due to the work of Park's student, Everett Stonequist.

Stonequist (1937) further elaborated on Park's "marginal man" with the description of the "marginal personality," which he argued was evident in individuals who were initiated into two or more historic traditions, languages, political loyalties, moral codes, or religions. This "marginality" between two static cultures was viewed as a problem, a source of anxiety, and a weakness that needed to be overcome. This seemingly commonsense notion that saw marginality as a state of uncertainty and conflict has been used as a source of support for subtractive assimilation policies.

The New Assimilation: Richard Alba and Victor Nee

The influx of non-European immigrants led to the questioning of the classic assimilation model. The passage of the 1965 Immigration and Nationality Act of 1965 (the Hart-Celler Act), which prohibited the exclusion of immigration and naturalization on the basis of race, sex, or nationality, opened the doors to many non-European (read non-White) immigrants to the United States. Despite this demographic shift in immigration, Richard Alba and Victor Nee argue that assimilation has been, and will continue to be, the "master trend" for newcomers and their descendants. They acknowledge that a degree of racism and ethnocentrism will always be part of the American fabric, and that there are immigrant pathways other than to assimilation, yet they believe that the classic assimilation model still remains valid. The evidence for this claim is that newcomers—irrespective of their race or ethnicity—change their language and culture as they gain contact with mainstream society; at the same time, the mainstream society increasingly accepts more diversity. Thus, they acknowledge that the mainstream itself is changed by immigration, eliminating the one-sided and normative assumption that only the newcomers change. Yet Alba and Nee do not assume assimilation's inevitability or even its desirability as a strategy in the eyes of newcomers. Rather, assimilation may be either a conscious strategy or an "unintended consequence" resulting from everyday decisions. They argue that immigrants should be allowed to assimilate at their own pace and in pursuit of their own interests. In brief, assimilation continues to be the dominant trend in American society, although its outcome may be uneven.

Critiques and Alternatives to Classic Assimilation

Classic assimilation theory has worked relatively well in explaining the assimilation trajectories of European immigrants to the United States. However, it remains embedded in binary oppositions (e.g., us/them, citizen/noncitizen, resident/"alien," legal/illegal, ethnic/nonethnic). This has the effect of excluding or "othering" certain groups. Referring particularly to the "new-assimilation" model, critics argue that for non-White immigrants, high levels of acculturation have not created the deep sense of belonging that has emerged for White ethnic immigrants. Straight-line assimilation also ignores

the other outcomes for immigrants, such as that of isolation, which occurs when a group willingly or unwillingly segregates or disconnects itself from the dominant culture. Consequently, its application to more recent non-European immigrant groups has met with challenges and given rise to alternative theories of immigration.

Margaret A. Gibson's Additive Acculturation

Classic assimilation ignores the *possibility* that immigrants may assume composite or dual identities such as Pakistani American, German American, and so on. This phenomenon is what Gibson (2005) refers to as "additive acculturation" or "accommodation without assimilation" (p. 582). It allows groups to preserve their identity in matters of religion, culture, language, and heritage while, simultaneously, encouraging full participation in the country's political arena.

Segmented Assimilation and the Rainbow Underclass: Alejandro Portes and Ming Zhou

The segmented assimilation perspective, advanced by Alejandro Portes and Ming Zhou (1993), argues that while assimilation continues to serve as a norm for immigrant adaptation, its outcomes have become segmented. That is, immigrants are either confined to "permanent underclass memberships" or experience rapid economic advancement even as they intentionally preserve their immigrant community's values and solidarity. The main contribution of Portes and Zhou is their focus on what factors influence the outcomes for immigrants. These include individual-level factors, such as parent–child relationships, and also contextual factors, such as racial discrimination, urban subcultures, and labor market prospects.

The Pluralist Perspective

By recognizing the impact that various groups have made on American society, the pluralist perspective breaks away from the "us/them" binary and instead provides a fresh way to look at what it means to be American. It thus challenges the passive, unconscious individualism of the assimilation model by postulating a more active role on the part of immigrant groups in defining their identities and solidarities. Moreover, it acknowledges that this process of negotiation is not just between the majority and minority groups but also among minority groups and even within groups themselves.

The pluralist perspective is not without its shortcomings; major criticisms are that it overlooks how structures impede the integration process and that it fails to give credence to issues pertaining to the second generation.

Ameena Ghaffar-Kucher

See also Communitarianism; Immigrants, Education of; Multicultural Citizenship

Further Readings

Alba, R., & Nee, V. (1997). Rethinking assimilation theory for a new era of immigration. *International Migration Review, 31,* 826–874.

Conzen, K. N., Gerber, D. A., Morawska, E., Pozzetta, G. E., & Vecoli, R. J. (1992). The invention of ethnicity: A perspective from the USA. *Journal of American Ethnic History, 12*(1), 3–25.

Gibson, M. A. (1988). *Accommodation without assimilation: Sikh immigrants in an American high school.* Ithaca, NY: Cornell University Press.

Gibson, M. A. (2005). Promoting academic engagement among minority youth: Implications from John Ogbu's Shaker Heights ethnography. *International Journal of Qualitative Studies in Education, 18*(5), 581–603.

Park, R. E. (1928). Human migration and the marginal man. *American Journal of Sociology, 33,* 881–893.

Portes, A., & Zhou, M. (1993). The new second generation: Segmented assimilation and its variants. *Annals of the American Academy of Political and Social Science, 530*(November), 74–96.

Stonequist, E. V. (1965). *The marginal man: A study in personality and culture conflict.* New York, NY: Russell & Russell. (Original work published 1937)

ASSOCIATIONISM

How we (humans and animals) acquire knowledge through learning has been thought to involve the process of associating—a psychological activity whereby one thing is connected with another. Accounts of how this occurs have been provided through the doctrine of associationism, one of the oldest and most influential theories of how the mind works. Associationism attempts to explain what exactly connects with what and the conditions necessary for the connecting to occur.

An embryonic account of associationism first appeared in Aristotle's *Memory and Reminiscence*. He proposed that remembering begins with an

intuition that is either similar to, contrary to, or occurring close in time to (contiguous with) the idea we seek to remember. This conception of memory dominated until the 17th century when a more developed theory of associationism began to emerge via the British empiricists (Thomas Hobbes, John Locke, and later, George Berkeley, David Hume, and others). It attempted to account for all mental phenomena and became the basis of British empiricist epistemology. The theory had four general features:

1. *Elementarism:* Complex psychological configurations are constructed or built up from simple elements such as ideas, perceptions, or impressions.
2. *Sensationalism:* The simple elements have their basis in sensory experience.
3. *Connectionism:* The simple elements are connected or associated together through experience to form complex configurations.
4. *Laws of association:* Certain conditions must be experienced for the associating to occur.

Differences between the British empiricists were minor. With regard to the laws of association, most accepted the conditions *resemblance* and *contiguity*—that is, when two ideas are similar or are frequently experienced together and one idea is subsequently activated, so is the other. Classical associationism culminated in the mid-19th century with John Stuart Mills's thesis that, in some cases, the associative whole is qualitatively different from the sum of its parts.

Toward the end of the 19th century, an important shift in associative theory occurred in America. Edward L. Thorndike's research into animal behavior led him to conclude that the association is not between ideas (animals do not possess any ideas) but between an antecedent stimulus (a sense impression) and what the animal does in response. Associations, or connections, were strengthened by use and weakened by disuse (the law of exercise), and the strength of the connection between stimulus and response was also enhanced if the desired response was rewarded (the law of effect). In *The Principles of Teaching*, Thorndike wrote that applying the law of association meant that teachers should put together what they wish to go together, keep apart what they wish to keep separate, and create a satisfying outcome by rewarding good impulses.

Thorndike's research was contemporaneous with Ivan Pavlov's demonstration that through repeated exposure to the sound of a bell before the arrival of food, dogs would eventually salivate in response to the bell; in other words, an association reliably occurred between the animal's experience of a conditioned stimulus (the sound of the bell) and its conditioned response (salivation before the presentation of food). Here, repetition and contiguity were the two conditions judged necessary for associations to form.

Thorndike's and Pavlov's research underpinned the substantial attention given to behaviorism (the theory that both human and animal behavior can be explained by observable processes such as conditioning, without appeal to inner or mental phenomena such as thoughts and feelings) during the first half of the 20th century. Hazy divisions emerged between those who thought that response–reinforcement associations were necessary for learning, those who explained learning solely through associative contiguity between the stimulus and response, and those who presumed that both were fundamental. In the hands of behaviorists, associationism was no longer a structural theory of the mind but a theory of learning and behavioral change. It was not ideas that were "glued together" but their observable analogues—stimuli, responses, and reinforcements.

Notwithstanding the prominence of behaviorism, experimental research into the formation of mental associations progressed, in Europe especially. This saw the beginnings of a sustained critique of associationism, albeit from very different quarters. Gestalt psychologists argued that the study of how associations are formed to generate action misses the point. Our perceiving, thinking, and learning is of complex wholes, not elementary components, and how we organize these wholes determines what we perceive.

Some philosophers held not only that elementarism is false but also that (1) the terms *mind, perception, impression, sensation, idea, memory, mental representation*, and so on cannot refer to mental entities because the psychological is relational—it is about processes or events occurring over time, not relatively static representational items internal to the mind or the brain, and (2) even if these mental items were not reified fictions, they could not be the immediate objects of awareness because this leads to a solipsism that has the subject never apprehending anything other than its own internal representations. In short, complexity and relatedness are to be discovered by directly apprehending reality—they

cannot be constructed by a mind (or a brain) that associates data of a less-than-complex kind.

Others bypassed these fundamental criticisms and targeted associative accounts of *how* we come to learn and remember. When the cognitive "revolution" manifested in the mid-1950s, it did so, in part, because associative learning theories were judged to be either limited in scope or plainly false. Noam Chomsky, for example, argued that stimulus–response associations alone could not explain language learning. John R. Anderson and Gordon Bower maintained that such associations could not account for the complexity of human memory. And, neglecting the critique of mental representationism above, they developed a "neo-associationist" theory that advanced an internal mental architecture involving representational networks of "trees" that consisted of linked (associated) "memory nodes."

More recently, artificial neural networks of linked nodes (which purportedly model the brain) have been developed to "learn" cognitive tasks such as face recognition and the detection of simple grammatical structures. They are yet to master the systematicity of "higher" cognitive abilities, and this limitation has been the subject of Jerry Fodor's polemic against associationism—the theory cannot account for our ability to reason or our ability to entertain thoughts with semantically related content, for example, anyone understanding the sentence "Tom likes Jenni" will also understand the sentence "Jenni likes Tom." Associative learning theory has also been denounced for assuming that the temporal pairing of two stimuli, for example, a noise and a shock, constitutes a single trial and that this temporal pairing is critical for association formation. These assumptions are said to lack ecological validity because the flux of life is multidimensional, not a series of discrete trials.

These criticisms aside, contemporary neuroscience maintains that learning involves the strengthening of connections between neurons (changing neuronal connectivity) across the many "cortical association areas." Repetition, therefore, supports learning, while the absence of repetition and exposure results in its decay. And although the role of associationism in explaining cognition has been weakened, in practice Thorndike's directions to teachers are difficult to escape. Contiguity, repetition, and reinforcement remain key principles in designing a learning environment.

Fiona J. Hibberd

See also Behaviorism; Cognitive Revolution and Information Processing Perspectives; Distributed Cognition; Learning, Theories of; Neurosciences and Learning

Further Readings

Anderson, J. R., & Bower, G. H. (1980). *Human associative memory: A brief edition*. Hillsdale, NJ: Lawrence Erlbaum.

Fodor, J. A., & Pylyshyn, Z. W. (1988). Connectionism and cognitive architecture: A critical analysis. *Cognition, 28,* 3–71.

Garson, J. (2012). Connectionism. In *The Stanford encyclopedia of philosophy*. Retrieved from http://plato .stanford.edu/archives/win2012/entries/connectionism

Shanks, D. R. (2010). Learning: From association to cognition. *Annual Review of Psychology, 61,* 273–301.

AT-RISK CHILDREN

Risks are factors that increase the likelihood of negative child development, behaviors, experiences, and outcomes. Risks also reduce the probability of positive child development. In general, the more risks experienced by children, the poorer is their development. Risks can occur at the level of the individual, the family, or the community, but often, they occur at all three levels. Moreover, children and youth who experience risk in one setting are more likely to experience risk in other settings as well. Risks can be distinguished from protective factors, which help insulate children from negative developmental influences. Risks are also distinct from promotive factors, which foster positive development. While practitioners and advocates, as well as researchers, increasingly emphasize positive outcomes and factors that promote positive outcomes, it is clear that minimizing risks can improve the prospects for children and families. Intervention programs that reduce relevant risks can have significant effects on the development and well-being of children and youth. This entry discusses the types of risks that affect child development; how risks are defined at the level of the child, the family, and the community; and how risks affecting child development are assessed. Risks are relevant to the philosophy of education both because the well-being of children is intrinsically valuable and because the risks experienced by children affect their ability to be productive as adults.

Types of Risks and Outcomes

Developmental outcomes for children and youth fall into the domains of physical health, mental health, cognitive development and educational achievement, and social development and behavior. Some types of risks are more relevant for one domain than another. For example, inadequate nutrition can have effects particularly on physical health and cognitive development, while low literacy among caregivers may particularly affect children's educational achievement. However, development in one domain frequently affects development in other domains. Accordingly, it can be anticipated that risks may have broad and even pervasive implications for child and youth development.

Risks can affect children directly or indirectly. Thus, for example, a child or youth may be directly victimized by crime or violence. Alternatively, he or she may be affected indirectly because children are not allowed outside in neighborhoods where crime and violence are pervasive, which can reduce physical fitness and increase obesity. And of course, risks vary in their intensity. Experiencing abuse or neglect is likely to undermine children's development much more than their living in crowded housing.

Risks also vary in the extent to which they are malleable. The education or marital status of a parent may not be easily affected by programs or policies. On the other hand, parents' practices related to child safety or family diet may be subject to change.

Risk Levels: Child, Family, and Community

As noted previously, risks can be identified at the level of the child, the family, or the larger community. Child-level risks can include health problems, difficulties with learning, mental illness, possession of a difficult temperament, or a physical limitation. While one can object to the notion that children can pose a risk to themselves, it is the case that some child characteristics can undermine their prospects for positive development, through no fault of the child. For example, a child who experienced a poor intrauterine environment and premature birth has an elevated risk for negative outcomes from day one. Identifying such risks can and should stimulate early intervention.

Community-Level Risks

Living in a violent or war-torn community poses obvious risks to children's survival and development, but the range of potential risks in a community is broader and more subtle. Risks may be environmental, such as high levels of air pollution and/or mistrust in the neighborhood, a lack of services such as transportation and playgrounds, and/or presence of lead in housing materials or water systems. Alternatively, risks may reflect a lack of cohesion and support among members of a community.

Family-Level Risks

Families are central to the development of children. Accordingly, risks at this level can have devastating effects. Family-level risks come in varied forms. One type is economic—families may lack the income to provide adequate food, housing, and clothing, as well as the books and experiences that children need to develop optimally.

Another type of family risk can come in the form of parenting practices. Parents may engage in harmful behaviors, such as hitting and screaming or smoking in the home around their child. Alternatively, parents may not provide sufficient positive parenting, such as speaking with or reading to their child. In addition, the absence of parental engagement can pose a risk. For example, parents may fail to guide a child's eating habits or moral development, perhaps because of depression, because they are focused on work or other responsibilities, or because they are simply busy with adult activities.

Parents may also fail to provide good role models. Parents can and do often model positive behavior, such as volunteering, exercising, or being a careful driver. However, parents can also model very negative behaviors. For example, parents may fight, cheat, use drugs, or follow unhealthy diets. Even if their behavior is not directed at the child, children can often still observe the behavior or its consequences (e.g., a hangover); such negative role models can undermine their positive development.

Unfortunately, risks tend to co-occur: Children and youth exposed to one type of risk are often exposed to other types of risk as well. Thus, a parent with a drug problem is more likely also to have low income and to engage in poor parenting. The phrase *toxic stress* is sometimes used to describe extreme, frequent, or extended stress faced by children without the buffer of protective factors, such as a supportive adult. Such stress can affect the neuroendocrine-immune network and have long-term emotional and even physiological consequences.

Assessing Risk to Children's Development

Nevertheless, it is important to note that most children experience low levels of risk. A number of approaches to assessing risk have been developed, and all tend to demonstrate a similar pattern.

The adverse childhood experiences (ACEs) model is one approach to assessing negative events or circumstances that people may experience. The 2011–2012 National Survey of Children's Health includes a set of measures that assess how many such experiences children have had since birth. Items include parental divorce/separation, a parent's death, inadequate family income, domestic violence, being a victim of or witnessing violence, living with someone with a mental illness, having a parent in jail or prison, and living with someone who had a problem with alcohol or drugs. Analyses of these data indicate that adolescents 12 to 17 years old who have experienced a greater number of adverse experiences are substantially less likely to be thriving. For example, the proportion of adolescents with high levels of behavior problems rises steeply as the number of ACEs increases from 30% for adolescents with no ACEs to 41% for those with one ACE, 50% for those with two ACEs, and 60% for those with three or more ACEs. Fortunately, relatively few adolescents experience a high number of ACEs. Specifically, in the 2011–2012 survey, 32% of the adolescents had not experienced any adverse experiences, while 44% had experienced one, 14% had experienced two, and the remaining 11% had experienced three or more.

Similarly, most children experience low levels of social and demographic risks at the family level. In addition to the ACEs measures, the National Survey of Children's Health assessed five measures of risk to children's development: (1) poverty, (2) living in a single-parent family, (3) parent(s) with low education, (4) family with four or more children, and (5) family unable to own or buy a home. As they do with respect to adverse experiences, most children experience low levels of social and demographic risk. Specifically, 44% had just one risk, 25% had two risks, and 18% had three risks. Only 14% experienced four or all five of the risks. But, again, those children with greater numbers of social and demographic risks also had lower well-being on a number of outcomes.

In sum, risks pose substantial challenges to children's development and well-being, and this pattern is robust across varied definitions of risk.

Fortunately, data indicate that only a minority of children and youth face extremely high levels of risk. Given the serious implications of risk for these children, assessments of risk can help identify children who are at high risk and can inform efforts both to reduce risks and to mitigate their consequences for children's development.

Kristin Anderson Moore

See also Achievement Gap; Adolescent Development; Dropouts; Stereotype Effects and Attributions: Inside and Out

Further Readings

National Research Council. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. Washington, DC: National Academies Press.

Romer, D. (Ed.). (2003). *Reducing adolescent risk: Toward an integrated approach*. Thousand Oaks, CA: Sage.

AUGUSTINE

St. Augustine (354–430 CE) was Bishop of Hippo, in North Africa, in the last decades of the Roman Empire. A towering figure of Western thought, Augustine's intellectual influence on philosophy and theology has extended for more than 14 centuries in fields far beyond Catholic Christianity. Admired by Protestants as much as by Catholics, his wider impact has been on philosophy, literary history, and theory. Historians of the late Roman Empire remain indebted to the insights his autobiographical *Confessions* provided of daily and especially academic life before the fall of Rome. After outlining salient features of his life, this entry will focus on those elements of his thought that have relevance for religious education, and for moral education more generally.

Augustine's early education was Christian; his mother, Monica, had ensured this. But his youth is marked more by contact with the "pagan" inheritance of classical Greece and Rome. Fond of literary composition and competition, at which he excelled, Augustine also completed a now-lost work on aesthetics. Before his conversion to Christianity, he taught grammar and rhetoric in Carthage and later in Milan.

There is an often-cited account of his conversion in a Milanese garden in 386 CE in which he hears

the instruction to pick up and read a book, which happens to be the Letter of Paul to the Romans, and specifically the passage (Romans 13:13–14) in which St. Paul abjures his Christian readers to avoid reveling and drunkenness, quarrelling, and jealousy, many of which activities Augustine saw in typical self-condemnation as characterizing his youth and early adulthood. This experience led to a period of retreat from the academic duties—he was a professor of rhetoric in Milan—to semimonastic existence at Cassisiacum. This was an important part of his postconversion life.

Under the pastoral guidance of St. Ambrose, Bishop of Milan, Augustine began to see the meaning of human existence as integrally related to the revelation of the scripture and the doctrines of the Church. Later, reluctantly accepting the ecclesiastical post as Bishop of Hippo, Augustine's entire postconversion life can be regarded as an attempt not only to be a guide to his diocese but also to philosophically and theologically defend and justify the orthodox teaching of the Catholic Church, and so his influence extended far beyond the remote corner of North Africa where he was bishop. No understanding of Augustine's impressive corpus of work is possible without seeing not simply a theological motivation but a deeply held and often personally passionate expression of his Christian faith.

Augustine's theological and philosophical output is always an expression of a personal faith, but it is also his perception of his duties as a bishop to guide and defend the faith against error. And, examining his early, preconversion life, there was no person he condemned more and in harsher terms than himself. Augustine is perhaps for this reason arguably most well known for the autobiographical work that charts his long and difficult conversion to Christianity, *Confessions.*

His educational reflections in this important work—as noted, it tells us much about schooling as well as university life in the classical world—are interesting for other reasons. Not least because in his self-recriminatory attack on the first three decades of his life he is adamant in suggesting that, apart from a life of dissipation, one notable impediment to conversion and a life of faith was a life of great learning, or at least learning misdirected.

For Augustine, learning should serve only one ultimate purpose, the seeking of God and through this personal salvation—and this was a position he maintained throughout his life. In a later work, *City of God*—his most significant philosophical and

theological achievement—he makes the distinctions between two cities, the earthly city and the city of God. The former and the latter necessarily interact. Those who have found salvation and those who have not are journeying through a life on earth. It is a pilgrimage in which the fate of all individuals will be decided in the Final Judgment. Earthly life is therefore an opportunity to find that salvation through the grace of God. Any way of life that prioritizes the earthly city rather than the City of God, which places the temporal above the eternal, risks an irrevocable loss.

If we see this in Augustine's most noted philosophical and theological works, it is all the more apparent in *On Christian Teaching*, or *On Christian Doctrine*. Here, Augustine deals with matters of teaching and learning in respect of matters of faith. This work took Augustine a surprisingly long time to complete; he started the first of his four books around the time he composed *Confessions*, in 395 CE, but he did not complete the work until some decades later. The central question of *On Christian Teaching* is whether it is right and proper for Christian educators to use the works of classical authors and their techniques of argument (notably rhetoric) for the purposes of Christian teaching. Augustine, a master both of classical learning and Christian doctrine, argues that it is.

This was no arcane matter for Christian educators in Augustine's time. Arguably, it is one on which Christian educators still reflect. Today, it might be the extent to which learning can draw on fields outside of theology and the study of religion (perhaps when these same fields might in their origin and intention have originated in a critique of religion, such as sociology and psychology). For Augustine, it reflects a debate that had been rife from the foundation of the Church and through its early centuries: How far was it legitimate to incorporate classical or pagan philosophy—even those not critical of the faith—into Christian theology?

Augustine develops his argument as follows. Since the highest good and our only ultimate happiness reside in God, it is lawful for a Christian teacher to use the means even of pagan learning, for example, its techniques of rhetoric, if these can be safely directed toward the salvation of souls. From here, Augustine reflects on the different types of learners who might benefit from different types of approaches to teaching. Some learners, he states, are attentive and ready to learn; others require more significant rousing and motivating. It is instructive

to read Augustine closely here, for the matching of approaches to teaching and learning based on individual need is something that most modern educators would regard as critical.

Techniques such as rhetoric may be legitimate, then, so long as they are directed toward salvific ends. Augustine develops his argument further, paralleling a philosophy of education and a philosophy of language. He examines the latter—as modern linguistics and/or philosophers of language might—through an analysis of signs. In this discussion, Augustine highlights two key errors in the interpretation of language: (1) taking the figurative literally and (2) taking the literal figuratively. Augustine does not resolve the problem of truth in language but emphasizes that language in educational or any other context raises issues of truth that are inextricably interrelated to language.

For Augustine, the greatest (educational) problem here is that while the teacher needs eloquence, demonstrated with classical as well as Christian exemplars, in all, it is more important for the teacher to have wisdom: A distinctive feature of strong intellectuals is not the love of words but the love of truth. Augustine talks of a golden key—What use is it, he asks, if it cannot open any door? A wooden key would be far more beneficial if it serves that purpose.

But for Augustine, even more is required of the teacher than skill in the art and craft of teaching. In Chapter 27 of *On Christian Teaching*, Augustine writes that the teacher should mirror the ideals he or she teaches, for "whatever may be the majesty of the style, the life of the speaker will count for more in securing the hearer's compliance"; the teacher "who speaks wisely and eloquently, but lives wickedly, may, it is true, instruct many who are anxious to learn" but will to themselves be unprofitable. "Now these [teachers] do good to many by preaching what they themselves do not perform; but they would do good to very many more if they lived as they preach." "For," writes Augustine, "there are numbers who seek an excuse for their own evil lives in comparing the teaching with the conduct of their instructors." *On Christian Teaching* is thus as much a work of professional ethics as it is of practical theology and pedagogy.

Liam Gearon

See also Aquinas and Thomism; Religious Education and Spirituality

Further Readings

Augustine. (2003). *City of God* (Rev. ed.; H. Bettenson, Trans.). London, England: Penguin Books.

Augustine. (2008). *On Christian teaching* (R. P. H. Green, Trans.). Oxford, England: Oxford University Press.

Augustine. (2009). *Confessions* (H. Chadwick, Trans.). Oxford, England: Oxford University Press.

Augustine. (n.d.). *On Christian doctrine* (J. F. Shaw, Trans.). Retrieved from http://www.ccel.org/ccel/schaff/npnf102.toc.html

Brown, P. (2000). *Augustine of Hippo*. Berkeley: University of California Press.

O'Donnell, J. (2006). *Augustine: A new biography*. London, England: Harper.

Stump, E., & Kretzmann, N. (Eds.). (2001). *The Cambridge companion to Augustine*. Cambridge, England: Cambridge University Press.

Autonomy

Individuals achieve personal autonomy to the degree that how they live must be explained as their own self-government. Personal autonomy is modeled on the self-government of the state, and the most conspicuous failures to achieve it are closely akin to failures of political autonomy. Those who live in fearful or unthinking conformity to the will of others fail to achieve personal autonomy, as do people who habitually succumb to inner drives they cannot control. The former condition is analogous to the state whose independence is subverted by some intimidating neighbor or colonial invader; the latter parallels the state that loses control to rebels within its own borders. An education for personal autonomy entails learning whatever enables human beings to achieve a valued state of individual self-government. This entry explores the long history of autonomy in Western philosophy of education and the controversies surrounding it in contemporary scholarship.

The previous paragraph points to the concepts of autonomy and education for autonomy. Both concepts are open to rival interpretations because individuals can disagree about where in the psyche to locate "the self" that properly rules and for which educational goals and processes are aligned to secure its rightful authority. This might be called the question of privileged location. Thus, we might agree that the concept of autonomy captures the paramount end of education even though our radically different

answers to the question of location entail disagreement about the education necessary to achieve that end.

Autonomy in Ancient Greek Philosophy

Western philosophy of education begins with Socrates in ancient Athens, and so too does philosophical argument about autonomy as an educational end. Because all we know about Socrates comes from the inconsistent writings of those who knew him, the details of what he believed are uncertain. What is clear is that he urged Athenians to subject their beliefs and values to critical scrutiny, to discard whatever was inconsistent or groundless, and to live in light of the truth so far as they reflectively grasped it, even if that led to public condemnation. The unexamined life was not worth living, and each of us must learn to do our own examining.

That is presumably the point of Socrates's notorious claim that he was not a teacher and taught nothing. For if we must learn to think and act for ourselves, we must each become our own teachers at some point. Others may facilitate that process through questioning and by tacitly inviting us to emulate their own autonomy. By such means, the "teacher," assuming for the moment that the word can be aptly used here, serves as a midwife to the birth of another's autonomous self. Thus, in Plato's earlier dialogues, which were likely written under the strong influence of his master, the role of Socrates as midwife/pedagogue is to draw out his interlocutor's own ideas with carefully crafted questions.

How did Socrates answer the question of privileged location? The ruling self resides in our capacity to assess evidence and argument in favor of principles or theories, independently of custom or the alleged expertise and authority of others. By exercising that capacity and encouraging others to do likewise, Socrates believed that we arrive at a humbling sense of how very little we really know and how vast and preposterous are the claims to knowledge that others make. Publicly exposing the ignorance behind others' claims to knowledge is a dangerous task if their prestige or authority is legitimated by these claims. Perhaps it is not surprising that the social subversiveness of Socratic autonomy led to his being charged and executed for corrupting the youth of Athens.

Socrates became a revered figure for later ancient philosophers, and his valorization of reason as the lodestar of human flourishing would become a dominant motif within the tradition. What was distinctive about Socrates among the great Greek philosophers, however, was a conception of reason that exalted the social independence of the examined life and its potential repugnance to the deliverances of all who claimed political or epistemic authority. In the case of Aristotle, for example, it is much less clear that the place of reason in the good life constitutes anything that could be aptly called autonomy. At the core of Aristotelian ethics is the idea of practical wisdom. Those who possess that virtue can reliably identify and choose the mean between opposing vices. We learn to become practically wise by emulating those who are already socially acknowledged as possessing that wisdom, and Aristotle assumes that such people will agree about where to find the mean. The Aristotelian conception of practical wisdom, thus, installs a deep moral conservatism as the fulcrum of his ethical theory and philosophy of education, a conception that leaves no room for the possibility of autonomous dissent and eccentricity of the sort that was celebrated in the life (and death) of Socrates. Virtue becomes conflated with high-minded respectability, and the critical edge of reason is blunted.

Autonomy and the Enlightenment

The advent of Christianity did not create an intellectual milieu congenial to exponents of autonomy. The fallen state of human nature in Christian doctrine is in deep tension with the idea that we can each find the best route to the true and the good by means of self-rule. Only with the dawn of the Enlightenment is there a reemergence of philosophical conceptions of self-rule and concomitant educational programs. Without doubt, the most educationally influential of these was expounded in Jean-Jacques Rousseau's great didactic novel *Émile*.

Among the watchwords of the Enlightenment was "nature," and the novel outlined a process of education from infancy to early adulthood in which conformity to nature was supposed to be the touchstone of good practice. Rousseau can also be interpreted as offering a distinctive answer to the question of privileged location. If *Émile* is to be our teaching manual, the rightful source of self-rule inheres in deep natural propensities that conventional educational practice inevitably thwart.

The novel's first sentence is among the most famous in the history of educational thought: "God

makes all things good; man meddles with them and they become evil." The task of a good education, then, if such a thing is possible at all, is to rear children in a way that keeps faith with the goodness of their nature and eschews the corruption of society. This is hardly a coherent undertaking given that human influence must intrude on the child's environment to elicit any learning above the most primitive level. The novel traces the education of its eponymous hero under the guidance of a wise tutor who systematically orchestrates Émile's experience behind the scenes with particular pedagogical goals in mind. The child believes that he is "learning from nature" when in fact nature has been surreptitiously manipulated to ensure a particular educational outcome. Despite its paradoxes, inconsistencies, and exaggerations, Rousseau's novel was to have a lasting influence on educational thought.

First, the idea that the natural cognitive and emotional development of the child places constraints on the educational process had a seminal influence on subsequent educational theory and practice. To some extent at least, the locus of educational direction has to lie with the child's evolving self and not merely with what is deemed desirable learning by the wider society. If the idea that children must be developmentally ready for what we teach them now seems to be a mere cliché, it is only because of Rousseau's overwhelming influence. Second, Rousseau conceived the developing self not merely in cognitive and volitional terms but also as a broadly affective process. The education of Émile was designed not merely to evoke a stable rational self that would rule against the grain of custom and social prejudice; it would also encompass our natural passions, most notably the compassion by virtue of which self-interest could be muted and reconciled to the interests of others. In its emphasis on the affective richness of human nature, Rousseau's theory paves the way for Romantic ideals of autonomy and authenticity that came to prominence in the late 18th and early 19th centuries.

Philosophical discourse on autonomy and the education suited to its realization has had a complex history since the publication of *Émile*, with important contributions from Immanuel Kant, John Stuart Mill, and others. Kant, for example, wrote a famous essay "What Is Enlightenment?" (1784) that opens with the straightforward statement, "Enlightenment is man's release from his self-incurred tutelage. Tutelage is man's inability to make use of his understanding without direction from another." He attributed this tutelage not to lack of reason but to lack of courage to use it independently.

The 20th Century and Beyond

Since the 1970s, the notion of autonomy has entered a particularly vibrant phase of development that has impinged on some of the most central questions about educational policy in diverse and democratic societies. The major inspiration for this is John Rawls's theory of justice.

Rawls argued that a certain ideal of the person was latent in the public culture of contemporary democratic societies. An essential feature of the ideal was that people must be free to revise their goals in life when new experience and knowledge show them that revision was needed. That is why individual liberty is such a widely cherished part of our public culture, or so Rawls maintained. But if that is why liberty matters, the argument also shows that people need to learn to think critically for themselves if revision to their goals is to be done when desirable. Unlike Socrates, Rawls did not say that the unexamined life is not worth living. But he is clear that the critical capacity to examine our lives—the capacity for autonomy, in other words—is integral to an ideal of the person that democratic citizenship presupposes.

Autonomy is crucial to Rawls's theory at another point. In addition to the capacity to revise our goals in life, Rawls claims that a sense of justice is fundamental to the democratic ideal of the person. Thus, we are all said to have a duty to support just institutions where they exist and to play some part in creating them where they do not. But this assumes that individuals have the interest and intellectual capacity reliably to assess the justice of institutions, which in turn presupposes that they have received an education that cultivates the relevant interest and capacity. An education for autonomy is thus a necessary component to the sense of justice entailed by the democratic ideal of the person.

In his later writings, Rawls emphasized the suitability of his theory of justice for societies in which pluralism was acknowledged as a permanent fact of life. He believed that our failure to come to agreement about many of the most fundamental ethical and religious questions was to be explained by the inherent limits of reason itself rather than by passions or interests that subverted our ability to reason. Therefore, a theory of justice should try to accommodate so far as possible our reasonable disagreements about what is good and right. This

raises an obvious question: Would an education that cultivates personal autonomy in the sense entailed by Rawls's theory really be acceptable to *all* reasonable persons in a democratic society?

Consider the fact that millions of people in currently democratic societies would describe themselves as religious conservatives who believe that obedience to God (or some earthly surrogate chosen by God) is the only basis for living as we should. Teaching children to obey God, according to the strictures of this or that particular religious tradition, and teaching them to cultivate autonomy are tasks that are not always easily reconciled, to say the least. Note that on Rawls's account, the cultivation of autonomy would mean that we should encourage children to think of their conceptions of the good as revisable constructs, to be modified or even abandoned altogether when reason and experience show that we should do so. But if my conception of the good is to follow the biblical Abraham who would even kill his son when he thought it was God's will, the prospect of revising that conception whenever my own reasoning tells me to do so will seem utterly scandalous.

The worry is that Rawls's theory cannot be nearly as accommodating of diversity as he thinks. On the one hand, his sparse explicit remarks about education assure us that any education for citizenship authorized by his liberalism should not be a burdensome or controversial undertaking. On the other hand, the alluring ideal of the person at the core of his theory suggests that an education in keeping with that ideal must substantially limit the scope of religious diversity in extant democratic societies.

But the problem here is not unique to Rawls's conception of autonomy. Any conception of the concept will affirm the value of thinking for oneself and choosing accordingly, and to the extent that it does, conflict with some varieties of cultural and religious conservatism is inevitable. That is as much a problem for adherents of Socrates as it is for devotees of Rawls.

How we should respond to this impasse is not altogether clear. One possibility is that we lack any sufficient reason to favor autonomous overheteronomous lives in the public provision of education. But the argument for democracy has often been thought to depend on the idea that citizens can learn to think critically and independently about justice and the common good and thereby advance these ends through their political participation. Otherwise, no special connection between democracy and these laudable public ends is evident. If education should

do nothing to establish the autonomy that enables citizens to discharge their civic duties well, at least one common defense of democracy has collapsed.

The only alternative to autonomy is to surrender our judgments to the will of others. That strategy is dubious not because we should expect people who think for themselves to think wisely all the time. What makes it dubious is the vast evidence we have to distrust elites who have been given the power to dictate how others choose and what they will believe. Sober worries about the fate of those who are intellectually and ethically subordinated in social hierarchies may well give us more than enough reason to cherish autonomy in personal as in political contexts.

To cherish autonomy as a central aim of education does not mean that no other aims are justified or that deference to values outside the realm of education might not properly limit its promotion. More work on these topics would enrich our understanding of autonomy in education. For example, we could reasonably expect that a consequence of cultivating autonomy more vigorously would be the decline of cultural and religious groups that depend on heteronomous loyalty. That would be a loss of diversity. On the other hand, a more widely diffused autonomy could inspire new ways of life, as Mill expected. Could new sources of diversity adequately compensate for the loss of traditional sources? This question and many others about the connection between autonomy and other educational or ethical values will preoccupy philosophers of education for many years to come.

Eamonn Callan

See also Kant, Immanuel; Mill, John Stuart; Plato; Rawls, John; Rousseau, Jean-Jacques

Further Readings

Kant, I. (1995). What is enlightenment? In I. Kramnick (Ed.), *The portable enlightenment reader* (pp. 1–7). New York, NY: Penguin Books. (Original work published 1784)

Plato. (2007). *Five dialogues: Euthyphro, Apology, Crito, Meno, Phaedo* (G. M. A. Grube & J. Cooper, Trans.). Indianapolis, IN: Hackett. (Original work composed ca. 389 BCE)

Rawls, J. (1973). *A theory of justice*. Cambridge, MA: Harvard University Press.

Rousseau, J. J. (1979). *Émile, or on education* (A. Bloom, Trans.). New York, NY: Basic Books. (Original work published 1762)

B

Bacon, Francis

Lord Francis Bacon (1561–1626), an English lawyer, statesman, and thinker, is primarily renowned today for his philosophy of science. Writing at the dawn of modernity, he offered a penetrating critique of contemporary sciences, an innovative method for the study of nature, and a revolutionary vision of human progress. While most of Bacon's practical suggestions were never embraced, his vision, which ties together social, technological, and scientific progress, has become one of the building blocks of Western civilization. Bacon's influence on the development of education was profound but indirect. Drawing on Bacon's vision, his adherents played a critical role in shaping education into its present form.

At the basis of Bacon's philosophy stands a rejection of the then dominant view that the sciences were limited to providing a better understanding of the world, and his conviction that their primary aim is to increase humanity's power over nature in order to make life safer, longer, and more convenient. Examining the sciences from this innovative utilitarian perspective, Bacon concluded that they were in a poor state and identified the main causes for it. Bacon points, inter alia in his conception of the "idols of the mind," to what can be divided into two sets of causes. The first stems from the limitations of human nature. According to Bacon, our understanding, modes of association, language, and personal tendencies are inherently flawed and naturally lead us into error and a distorted conception of nature. The second set of causes is the prevailing intellectual traditions of the time. Bacon mounted a devastating critique of contemporary practices, philosophies, and research methods. He argued against the common view that the study of nature and piety conflicted, objected to the fusion of religious and scientific ideas, accused Aristotle of corrupting the natural sciences with his overuse of deductive logic, attacked the excessive individualism that dominated contemporary research, and struggled against superstition and occultism. For Bacon, existing systems of thought not only failed to correct the inherent defects of human nature but also became in themselves barriers to scientific advancement.

Bacon was persuaded, however, that if the reform plan he put forward—mainly in his *The Advancement of Learning* (1605) and *The New Organon* (1620)—were embraced, the limitations of human nature could be overcome and the sciences could rapidly progress.

The key to success, he held, was to render the study of nature systematic. This was to be done through five key mechanisms. First, religion and the natural sciences were to be separated and all existing intellectual traditions abandoned. Second, all forms of human learning were to be mapped and classified into different branches. Third, rigorous and comprehensive data collection was to take place in each branch of the natural sciences. Here, he also advocated a reform in the methods of data collection. Bacon held that observations must be made the principal tool for studying nature, but his greatest innovation in this domain lay in his belief that man-made manipulation of nature, namely, experiments,

is an important means for acquiring knowledge. Fourth, eliminative induction was to be used in order to derive general principles from the data collected. In this complex process, phenomena that share a common feature, for example, that they produce heat, had to be broken down into their most basic elements and the general cause responsible for their common feature, producing heat in our example, identified through the elimination of all alternative possibilities by way of comparison. Finally, research was to be kept public and preferably institutional to enhance the method's effectiveness. If this program were followed, Bacon argued, humanity could gain power over nature and ameliorate life.

Bacon even provided a vision of what life could look like if the sciences advanced. In his unfinished utopian novel *New Atlantis* (1627), which was published posthumously, he portrays a technologically advanced society in which all people enjoy a comfortable life after nature has been conquered, scarcity eliminated, and life prolonged through the work of a central research institution.

Historically, Bacon's proposed method of scientific investigation was far removed from the one that actually led to the development of science and technology. Although Bacon has been credited with some important innovations, such as stressing the role of observation and experimentation, his method has been severely criticized for ignoring the importance of mathematics, for seeking localized technological advancement instead of comprehensive scientific theories, for overemphasizing induction, for disregarding the role of hypothesis in scientific development, and for aiming at an impossible goal—the complete domination of nature. These weaknesses in Bacon's theory have even led some to cast doubt on his contribution to philosophy. On the other hand, Bacon's vision of a scientifically and technologically advanced society has proven to be extremely influential. Within a few decades, Bacon's program of institutional scientific research aiming at useful discoveries led to the establishment of national societies for the advancement of science in England, France, and, later, the rest of the world. In the 18th century, Bacon's vision of progress was adopted by the thinkers of the Enlightenment and woven into the substructure of modern Western thought. Ever since, the innovative link created by Bacon between scientific progress, technology, institutional research, and improvement of living conditions has steered, despite the growing critique of it, the development of Western culture.

Bacon's vision has also had a momentous impact on the formation of modern education. Although he hardly wrote on the subject per se, Bacon's views have important educational implications, which were developed by his followers. Inspired by Bacon, 17th-century reformers such as Johann Amos Comenius argued that education was essential for preparing the ground for scientific progress. Accepting the aims of Bacon's program, Comenius held that it implied reform not only in research but also in education. To secure scientific progress, Comenius maintained, education has to be made systematic and universal. In the 18th century, plans for a national educational system were drafted with Bacon's ideal of progress in mind. In these plans, education and the curriculum were reoriented toward the practical and increasingly seen as serving science and technology. Eventually, in the 19th century, educational systems were erected along the same lines. At present, Western educational systems are still guided, perhaps even increasingly so, by Bacon's vision of progress. It is Bacon, therefore, who, for better or worse, set the framework in which our educational systems currently function.

Tal Gilead

See also Aristotle; Comenius, Johann Amos; Positivism; Utopias

Further Readings

Bacon, F. (1960). *The new Organon* (F. H. Anderson, Ed.). New York, NY: Macmillan.

Bacon, F. (2002). *Francis Bacon: The major works* (B. Vickers, Ed.). Oxford, England: Oxford University Press.

Olson, P. A. (2002). *The kingdom of science*. Lincoln: University of Nebraska Press.

Peltonen, M. (Ed.). (1996). *The Cambridge companion to Bacon*. Cambridge, England: Cambridge University Press.

Quinton, A. (1980). *Francis Bacon*. Oxford, England: Oxford University Press.

BEAUVOIR, SIMONE DE

The French writer, philosopher, and activist Simone de Beauvoir (1908–1986) is recognized as one of the most significant intellectuals of the 20th century. Her primary writings date from the 1940s and 1950s, although she wrote her first philosophical

piece while still a secondary school student. Her often literary style contributed to a changed conception of philosophy in Continental intellectual life. Her writings included novels and plays, letters and diaries, and several volumes of autobiography, along with more traditional philosophical essays. Although still contested, it is important today that her philosophical occupation across these genres be emphasized. Beauvoir is best known for contributions to two philosophical arenas: existentialism, with its connections to phenomenology, and Marxism, and to a birthing of modern feminist theory. In these areas, her work has been of interest to contemporary philosophers of education, especially but not exclusively those concerned with feminist issues and Continental thought. Her writings continue to serve as an important and empowering model for new generations.

Central to Beauvoir's philosophy is her biography. She was born in 1908 into an upper-middle-class Parisian family that underwent hard times; her mother especially sacrificed a lot for her two daughters. They had a traditional Catholic girls' education, and Simone, without a dowry, prepared to go to work. She studied mathematics and science (opened only a few years earlier to female students) and graduated from two preparatory schools in these subjects as well as in literature, Greek and Latin, and philosophy. Although not allowed to enroll, she gained access to courses at the Sorbonne and lectures at the École Normale Supérieure, the premier national institution for all teachers of philosophy. In 1929, she became the youngest woman ever to earn the national degree in philosophy. Her economic security was realized initially in employment at *lycées*, the well-known regional secondary schools in which most philosophers taught.

During the period when she was studying for the degree, she met Maurice Merleau-Ponty and Jean-Paul Sartre. In the national exam, the legend is that the judges debated hotly whether to award first place to Beauvoir or Sartre; perhaps he was given the highest rank because he was male. Merleau-Ponty remained a true friend throughout her life, and Sartre, as is well known, was her "significant other" personally and professionally. Together the three spearheaded the existentialist movement (a movement that rose, briefly, to a prominent position in the philosophy of education in the United States in the late 1950s to early 1960s).

Beginning in 1943, the first of five novels appeared; the fourth, *The Mandarins*, earned her the nationally prestigious Prix Goncourt in 1954.

Her first philosophical essay was published in 1944, and the two most important philosophical texts followed: *The Ethics of Ambiguity* in 1947 and *The Second Sex* in 1949.

Today, it is well understood that Beauvoir was always a philosopher, even as she resisted the label. This was perhaps due to her perception of "prejudice" against women intellectuals of her generation and to her own "debt" as the protégée of Sartre. Her personality strongly figured in her philosophical approach; she was an often unconventional, intense, passionate, and highly introspective person. Overall, she envisioned philosophy in nontraditional ways. First and foremost, while standard philosophy was abstract and oriented toward universal system building, this was not her orientation. Instead her approach was concrete and situational, a view named "the philosophy of lived experience." It focused often on the everyday lives of persons, of self and others, and was more ethical and political than epistemological. This foundational experience was universal, common to everyone, but it was also particular, as it differed for each. For Beauvoir, experience for women was importantly distinct from that of men.

Recent commentary on Beauvoir's philosophy has recognized its affinity to contemporary poststructuralist writings. She was not part of this tradition, but central concepts in her work do resonate with later French philosophers. These ideas include ambiguity, embodiment, subjectivity and intersubjectivity, and freedom. For her, an ethics resulted. To begin with, ambiguity is basic to the human condition, shared by all, and it is something to be embraced. In her text *The Ethics of Ambiguity*, there is no philosophical "search for certainty" and no detached thinker. Ambiguity arises out of experiencing the inevitable tensions of the world.

Ambiguity is tied not only to consciousness but also to a materiality: Humans are embodied. In *The Second Sex*, Beauvoir introduces the distinction between sex and gender and, in analyzing the way in which women experience their bodies, shows that embodiment is central to experience, to making choices, and to carrying out actions. Bodies are key in subjectivity.

Beauvoir's third concept, subjectivity, is used in dealing with the modern problem of the relationship of self to the world, especially to others: Each self has a desire to be, to achieve a transcendence that cannot be realized. The self is always at once both solitary and potentially in solidarity, interrelated to others. Unlike some other existentialists, in

Beauvoir's philosophy, subjectivity and intersubjectivity are one and the same and are constitutive of existentialist freedom.

Finally, Beauvoir's philosophy aims for a "new synthesis," an ethics that retains a modern rather than a postmodern aim. Out of this ethics, a politics emerges that incorporates the ambiguity and indeed the practical failures of everyday life—multiple paths for action may be seen to be possible, but the choices that are made are ultimately pragmatic, for God, state, or Other cannot be relied on for life's answers. There is only the lived experience of all.

Especially her contributions to existentialist and feminist theory, and to the politics that resulted, remain significant for contemporary philosophy of education and for all educators committed to social justice.

Lynda Stone

See also Continental/Analytic Divide in Philosophy of Education; Embodiment; Feminist Ethics; Phenomenology; Sartre, Jean-Paul

Further Readings

Beauvoir, S. de. (1964). *The ethics of ambiguity* (2nd ed.; B. Frechtman, Trans.). New York, NY: Citadel Press. (Original work published 1948)

Beauvoir, S. de. (2004). *Philosophical writings* (M. Simons, Ed.). Chicago: University of Illinois Press.

Beauvoir, S. de. (2009). *The second sex* (C. Borde & S. Malovany-Chevallier, Trans.; with introduction by J. Thurman). New York, NY: Vintage Books. (Original work published 1949)

Bergoffen, D. (2010). Simone de Beauvoir. In *Stanford encyclopedia of philosophy*. Retrieved from http://plato.stanford.edu/entries/beauvoir/ (First published 2004)

Card, C. (Ed.). (2003). *The Cambridge companion to Simone de Beauvoir.* New York, NY: Cambridge University Press.

Kruks, S. (2012). *Simone de Beauvoir and the politics of ambiguity.* New York, NY: Oxford University Press.

Moi, T. (2009). *Simone de Beauvoir: The making of an intellectual woman* (2nd ed.). New York, NY: Oxford University Press.

Behavioral Objectives and Operational Definitions

The topic of behavioral objectives in education is clearly distinct from that of operational definitions.

They have a different origin, since the behavioral objectives movement arises out of behaviorist theory in psychology, while defining concepts "operationally" originated in the quest for clarity in meaning in scientific and everyday life. Though logically distinct, behaviorism and the behavioral objectives movement latched onto operationalism as a method for combating introspection as a source of knowledge of psychological processes and as a way to rid psychological concepts of subjective meaning in the quest for an objectively verifiable science of behavior. This entry discusses operationalism, behavioral objectives, and their use in education, and criticism of the behavioral objectives movement.

Operationalism

"Operationalism" was given full-blooded treatment by the Nobel Prize–winning physicist P. W. Bridgman in *The Logic of Modern Physics* (1927), though his operationalism was anticipated by the work of the American pragmatist philosopher Charles S. Peirce. Peirce (1878/1992) formulated a particular pragmatic maxim of operational intent as follows: "Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object" (p. 132). Peirce insisted that this maxim is about meaning—a "maxim of logic"—simply a method for more clearly defining one's terms. Like Peirce, Bridgman was concerned with how to make our concepts clear and distinct. Bridgman was greatly concerned that physicists had imported terms from one area of physics into another without recognizing that the same term no longer picked out the same concept. The result was conceptual confusion and theoretical dissolution. So Bridgman (1927) turned Peirce's pragmatic maxim into a more explicit operational maxim: "In general, we mean by any concept nothing more than a set of operations; the concept is synonymous with the corresponding set of operations" (p. 5). Bridgman here used the example of length in illustrating his operational maxim: Its meaning is given by the various observable and repeatable procedures and operations. Such a stance, if taken literally, however, creates problems of its own. It seems to imply that different procedures and operations create multiple concepts of length, all with different meanings, when what is wanted is one concept of length, if possible, with multiple ways of determining it. Despite the misfortunes of operationalism as a method for determining the meaning of

scientific concepts, it is the tough-minded spirit of operationalism that moved behaviorist psychology to adopt its attitude and prefer operational definitions cast in behavioral (observable) terms in dealing with educational objectives.

Behavioral Objectives

In the modern era, J. F. Bobbitt's *The Curriculum* (1918) stands out as the first influential text advocating the design and selection of educational objectives; as an "efficiency expert," Bobbitt extolled the use of objectives in curriculum planning. Though differing with Bobbitt's utilitarian approach and rooted within the progressives' emphasis on individual development, Ralph Tyler (1949) extended Bobbitt's embrace of educational objectives with an additional focus on their evaluation in his influential *Basic Principles of Curriculum and Instruction*. This book arose out of Tyler's experience as the lead evaluator of the "Eight-Year Study" (1933–1941), a Progressive Era attempt to recast high school curricula.

As Tyler narrowed his focus to evaluation of the attainment of educational objectives in curriculum planning, he advocated the formulation of objectives in more specific terms to permit finer-grained assessments of student learning. Though still fairly general in scope, these objectives could then be related to content and student behavior in the business of planning. Tyler and his students—for example, Benjamin Bloom, chair of a committee that produced the influential *Taxonomy of Educational Objectives* (1956) and its follow-ups—could scarcely be considered to be "behaviorists," given their holism and their integration of the cognitive and affective domains of human experience, along with the psychomotor, into their work. However, their growing tendency to emphasize the connection between behavior and evaluation, through testing, prepared the stage for the "scientific asceticism" of behavioral objectives.

Behaviorism operationally defines learning not in cognitive or mentalistic terms but as a more or less permanent change in behavior. In particular, the influential psychologist B. F. Skinner often defined learning operationally as nothing other than changes in the frequency of a behavioral response (see, e.g., Skinner, 1953). The behavioral objectives movement has taken these operational definitions of the concept of learning seriously in determining the full range of educational objectives, asserting that all meaningful educational objectives should conform to a behavioristic specification. This sets a problem noted by R. H. Ennis (1964): "How can we give

operational definitions without unduly restricting the meaning of the terms in which we state our conclusions?" (p. 183). In other words, does the behavioristic definition of learning unduly restrict the language of educational objectives across the cognitive, affective, and psychomotor domains noted by Bloom and colleagues? It might be thought that the greatest difficulties for a behavioral treatment of educational objectives arise in the cognitive and affective domains. But even psychomotor learning in education may elude a behavioristic analysis.

Strongly influenced by Skinner and others, R. F. Mager returned the analysis of educational objectives back to the preprogressive, utilitarian strain introduced by Bobbitt. He drew his inspiration from factory and military settings that featured stepwise functions in the completion of a product or task. His *Preparing Objectives for Programmed Instruction* (1962) became a sensation in certain quarters and codified the approach to behavioral objectives in education. In dealing with the cognitive domain, Mager expunged terms such as *knows, believes, understands, feels, appreciates, grasps the significance of, acknowledges*, and so on, in the construction of objectives because they implicated unobservable, subjective, mental events and states that could not be controlled for, replicated, or measured. He permitted only terms that seemingly implicated "overt" behavior that could be replicated and measured: *puts, points, circles, recites orally, removes, sorts, counts, underlines*, and so on. Other, "softer" proponents of behavioral objectives realized that not all mentalistic-infected terms could be dispensed with in the construction of objectives without impoverishing educational discourse or narrowing the phenomena of teaching and learning. However, they require that a behavioral indicator accompany each use of a cognitive term. As for the affective domain, if not exorcized (since there is no use for mentalistic or internal terms such as *feels, fears, motivates, intrinsically satisfies*, etc.), at best such terms are subject to dispositional analysis in terms of behavior.

According to Alberto and Troutman (1999), the construction of each behavioral objective should identify four elements:

1. The person(s) for whom the objective is written (the learner)

2. The behavior targeted for change

3. The conditions under which a behavior will be performed

4. Observable criteria for determining when the acceptable performance of the behavior occurs

The desired behavior itself should be clearly specified in operational behavioristic terms, something that is repeatedly observable, and its extent measurable, and the conditions of learning clearly specifiable and repeatable.

In later years, Robert Mills Gagné and Leslie J. Briggs (1974) incorporated the notion of a learned-capability aspect into the specification of objectives that indicates the kind of learning category for the intended behavior. Otherwise, a silo might envelop each behavioral objective. This treatment by Mager, Gagné, and others has been quite influential in education, even if there has been little understanding of the psychology and philosophy from whence it rose. In education today, the behavioral objectives movement is especially strong in test design and measurement, assessment, special education, and instructional design. We may see the latter at work in many colleges' departments of educational technology.

Critique

The behavioral objectives movement suffers from the same defects that plague psychological behaviorism; the attempt to account for all learning as merely changes in behavior is similar to the way Skinner's behavioral reinforcement induced his pigeons to dance—they made a series of movements, mechanically, to receive food but had no conception that they were "dancing." But propositional learning that results in understanding or grasping the meaning of something, on the face of it, simply cannot be banished or reduced to simple behavioral learning—learning to appreciate a poem, for example, has no strict behavioral "indicator." Coming to be a person who maintains certain moral principles and beliefs as a result of study, reflection, and education is a kind of "learning to be" that appears to elude any facile deconstruction into stepwise behavioral elements. Gestalt psychology's analysis of insightful learning, "ah ha!" moments of connecting separate events or ideas, and cognitive psychology's necessary recourse to "mentalistic" concepts makes far more sense of the phenomena elucidated by Bloom and colleagues' taxonomies than Mager's curt dismissal of most of them.

Finally, there is behavioral learning. Here, behavioral objectives might find a home in education. The question, however, turns on another: Did Skinner really induce his pigeons to *dance?* As pointed out earlier, using operant conditioning, he trained them to repeat dancelike movements, and doubtless, their behavior looked like a dance, given their precise steps in a pretty pattern. And doubtless we could easily write a perfect behavioral objective for the pigeons and confirm it repeatedly. But did they really learn to dance? T. F. Green's (1964) analysis of learning the complex activities that we teach in education, including dance, yields a resounding "no." Learning such rule-governed activities, he urges, requires acquiring a norm that invites not simply conformity but obedience to it, and a capacity for making critical judgments of one's own performance and that of others. Moreover, to reduce teaching to bringing about behavior conformity is to misconceive it—teaching ultimately should be aimed at the enlargement of the human capacity for action and the critical capacity for judgment, what Israel Scheffler (1965) has called "passing on those traditions of principled thought and action which define the rational life for teacher as well as student" (p. 143).

In this way, the combination of behavioral objectives with an unsatisfactory, reductionist operational definition of "learning" can be an immense source of mischief, if not danger, in education.

David P. Ericson

See also Behaviorism; Taxonomy of Educational Objectives

Further Readings

Alberto, P. A., & Troutman, A. C. (1999). *Applied behavior analysis for teachers*. Upper Saddle River, NJ: Charles E. Merrill.

Bloom, B. S. (1956). *Taxonomy of educational objectives, handbook I: The cognitive domain*. New York, NY: David McKay.

Bobbitt, F. (1918). *The curriculum*. Boston, MA: Houghton Mifflin.

Bridgman, P. W. (1927). *The logic of modern physics*. New York, NY: Macmillan.

Chang, H. (2009). Operationalism. In *Stanford encyclopedia of philosophy*. Retrieved from http://plato.stanford.edu/entries/operationalism

Ennis, R. H. (1964). Operational definitions. *American Educational Research Journal, 1*(3), 183–201.

Gagné, R. M., & Briggs, L. J. (1974). *Principles of instructional design*. New York, NY: Holt, Rinehart, & Winston.

Green, T. F. (1964). Teaching, acting, and behaving. *Harvard Educational Review, 34,* 507–524.

Mager, R. F. (1962). *Preparing objectives for programmed instruction.* San Francisco, CA: Fearon. (Later editions are available)

Peirce, C. S. (1992). How to make our ideas clear. In N. Houser & C. Kloesel (Eds.), *The essential Peirce* (Vol. 1). Bloomington: University of Indiana Press. (Original work published 1878)

Scheffler, I. (1965). Philosophical models of teaching. *Harvard Educational Review, 35*(2), 131–143.

Skinner, B. F. (1953). *Science and human behavior.* New York, NY: Macmillan.

Tyler, R. (1949). *Basic principles of curriculum and instruction.* Chicago, IL: University of Chicago Press.

BEHAVIORISM

Behaviorism, or "the science of behavior" as some of its adherents occasionally called it, is a broad movement in psychology that evolved during the early decades of the 20th century—although its roots can be traced back, through British empiricist philosophers such as John Locke and David Hume in the late 17th and early 18th centuries, to the ancient world (several behaviorist principles can be found in Aristotle's *De Anima*). Focusing originally on animal and human learning, the modern movement broadened during the 20th century, and behaviorist approaches can be identified in many of the social sciences and even more widely afield—for example, the Oxford philosopher Gilbert Ryle's *The Concept of Mind* (1949) is often identified as a major work in the philosophical behaviorist tradition. This entry first identifies the basic concepts underlying behaviorism and then describes the approaches taken by John B. Watson, Edward Thorndike, B. F. Skinner, and Ryle.

The Basic Orientation

In defining psychology as the science of behavior, the behaviorists were staking out a position that was in revolutionary contrast to the traditional account, in which psychology was the study of mental life. The three factors that directly shaped this revolution were stated clearly enough in the feisty opening lines of an essay in the *Psychological Review* (1913) by John B. Watson (1878–1958)—who, two years later, on a rising tide of popularity, swept into the presidency of the American Psychological Association:

Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. (1913/1948, p. 457)

Awareness of these factors did not begin with Watson; they were part of the intellectual environment of the human sciences. First, if psychology was to be categorized among the sciences, it had to be possible to carry out experiments and test its hypotheses, which would entail making measurements and observations that would result in data that were publicly accessible and thus open to replication or rejection within the scientific community. None of this seemed possible if the focus was on mental or conscious events (which were private to the individuals having them); the same difficulty did not exist with behavior. Second, the method by which conscious life was investigated—introspection, or observation of one's own "inner" mental processes—faced several difficulties. Practitioners of introspection produced accounts of "inner" or mental experience that sometimes were in conflict, and there was no apparent way to resolve these differences, no way to put the rival accounts to the test. Added to this was the obvious difficulty that it was problematic to suppose that a person could accurately observe his or her own conscious processes while at the same time being fully engaged with them—for example, trying to remember some complex event or entity while at the same time making detailed observations about what this remembering process entailed. (Ryle and other philosophers have pointed out that the use of "inner" in accounts of introspection is a metaphor, a point to which the discussion will return.)

The third factor alluded to by Watson was one traceable to the impact of Darwin's *On the Origin of Species* (1859). Although in this work Darwin studiously avoided mentioning the evolutionary origins of the human race, it was clear—and was made explicit in his later writings—that he regarded *Homo sapiens* as part of the animal kingdom and as related to other animal species by way of evolutionary "descent." Thus, Darwin established "genetic continuity" within biological nature, according to which

principle there was "no dividing line between man and brute." One consequence of this for psychology was that the techniques used to study animal behavior by the so-called comparative psychologists could also be used to study humans, for humans also were animals; and just as the study of animal psychology was progressing without (necessarily without) the use of introspection, the same might be expected with respect to the psychological study of humans.

The Behaviorism of John B. Watson

Watson's behaviorism built on the work of the Russian physiologist Ivan Pavlov on conditioned reflexes. Pavlov had found that in naturally occurring reflexes, in which a stimulus automatically produced a specific response (the sight of food producing a flow of saliva in a hungry dog was the classic case), if a second stimulus was regularly associated with the natural stimulus (if, e.g., a bell was sounded when the food was presented), then this second stimulus eventually would be able to elicit the response by itself—it would have become a "conditioned stimulus." Watson used this mechanism to explain how humans acquired their individual repertoires of behavioral traits. In one notorious experiment, he showed how a young child (Albert) could acquire a fear of white furry animals (perhaps even of Santa Claus with his white flowing beard!). Albert was allowed to play with a tame white rat, and then the experimenter frightened him by striking, behind his back, a loud gong. The natural reflex here—a stimulus of a loud noise producing the response of fear—became transformed into a conditioned reflex in which the sight of a white furry animal became a conditioned stimulus that produced the fear response. In his book *Psychological Care of Infant and Child* (1928), he argued that careless parents were responsible for conditioning all of their children's bad habits and fears in a similar fashion, and he referred to the psychological "sledge-hammers" that existed in the home. But, fortunately, the very same processes of conditioning, properly directed, could lead to salvation. In his book *Behaviorism* (1925), he made this bold determinist claim: "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select" (p. 104).

Some reviewers were swept off their feet by the possibilities raised by Watson, but others—perhaps more discerning?—were appalled. Aldous Huxley produced a book-length response to Watson, his novel *Brave New World* (1932), which depicted a future in which babies were mass produced from bottled embryos and then subjected to schedules of conditioning to equip them with the attitudes and abilities the leaders of society deemed fit. In a scene that could only have been based on Watson's experiment with young Albert, Huxley (1932/1958) described how youngsters in the "brave new world" were conditioned to have a lifelong fear of books: As the babies crawled toward brightly colored, attractive books that had been laid out, suddenly "there was a violent explosion. Shriller and ever shriller, a siren shrieked. Alarm bells maddeningly sounded." The passage ended with the chilling words "What man has joined, nature is powerless to put asunder" (pp. 28–29). Watson seemed undaunted by such criticisms; but in an interesting twist of fate, he left the academic world due to personal difficulties and took his behavior-shaping skills to the world of advertising, where he had a successful second career.

Apart from the moral issues raised against Watson, and the practical problems of putting his deterministic vision into operation, there was an important theoretical problem—the mechanism of classical conditioning that he took as basic for shaping behavior depends for its effectiveness on locating natural reflex mechanisms that had the desired responses as their built-in end point (fear, interest, or whatever) and in which the natural stimulus leading to these end points could be replaced by conditioned stimuli. As the number of suitable natural reflexes is extremely limited, the mechanism of classical conditioning is necessarily of limited educational use. However, there is another mechanism available that offers greater possibilities for the behaviorist's educational dream of shaping behavior. This mechanism was investigated around the turn of the 20th century by E. L. Thorndike and studied further, refined, and applied in a variety of ingenious ways around the mid-20th century by B. F. Skinner.

E. L. Thorndike and the Law of Effect

Thorndike (1874–1949) started his research into animal learning while a doctoral student at Harvard—he kept his experimental subjects, chickens, in the basement of the home of his advisor, William James. He moved and completed his studies at Columbia University and soon joined the faculty of Teachers College, Columbia, where he remained for about

40 years. In contrast to Watson, who focused on substituting or conditioning a new stimulus to replace the naturally occurring one in an in-built reflex arc or S–R (stimulus–response) connection, Thorndike was interested in the effect of repetition and also in the effect of rewarding of the responses that animals made to the situations they were in. He found that the more often a particular response was made in a given situation, the more the connection or association between that situation and that specific response was "stamped in"; later, his position came to be known as connectionism, but its relation to the associationism that stemmed from the British empiricist philosophers was also evident (although their focus had been on association of ideas, not on association between situations and the behavioral responses to them). Thorndike also found that if a response led to a favorable outcome (i.e., if it was rewarded or reinforced), this behavior was more likely to occur again in a similar situation. This can be illustrated by one of his famous studies on cats: If a hungry cat is imprisoned in a suitably constructed cage, outside which is located a "reward," such as a bowl of milk, the cat eventually will, by way of its random thrashings about, hit an escape mechanism and thus gain access to the reward. On subsequent imprisonments, the cat will repeat this behavior, but the time taken for the animal to escape will decrease as it learns—via reinforcement—to hit the mechanism. This finding could be depicted in the form of a so-called learning curve, and it also was formulated in general terms as Thorndike's famous "law of effect," which stated that an act in a particular situation will be more likely to recur if it "produces satisfaction," and it will be less likely to recur if it produces "discomfort." The rewarding of desired behaviors on the part of a student and the punishing of undesired behaviors, of course, are important strategies virtually taken for granted by teachers.

Several lines of criticism of Thorndike's work emerged. First, although his scientific work was of high quality, Thorndike was so convinced that careful laboratory studies such as those described above pointed the way to improvement of teaching practices in schools that he found it unnecessary to actually carry out studies or make observations in real classrooms. It is a common experience among researchers, however, to find that laboratory findings do not hold up in uncontrolled real-life situations. (It is worth noting, in passing, that Thorndike also carried out important laboratory studies on the issue of transfer of learning, discussed elsewhere in

this encyclopedia.) The point was also made that Thorndike's experimental designs constrained what he could discover—in essence, by placing animals in situations where intelligence was of no use to them (e.g., by placing them in a cage with a "secret" escape mechanism that could be triggered by chance), he "found" that intelligence played no role in learning and that the process could be fully explicated in terms of repetition and reinforcement. In contrast, the German Gestalt psychologist Wolfgang Köhler, who made this criticism, placed his experimental subjects—chimpanzees—in situations involving problems for which the elements of an intelligent solution were available to them (and he discovered that they did, indeed, reflect and act intelligently!). The philosopher Bertrand Russell (1927/1960) brilliantly summarized this whole situation:

> One may say broadly that all the animals that have been carefully observed have behaved so as to confirm the philosophy in which the observer believed before his observations began. Nay, more, they have all displayed the national characteristics of the observer. Animals studied by Americans rush about frantically, with an increasing display of hustle and pep, and at last achieve the desired result by chance. Animals observed by Germans sit still and think. (pp. 32–33)

B. F. Skinner and Operant Conditioning

Thorndike's work on learning was built on by a number of subsequent researchers, of whom the best known was the Harvard psychologist B. F. Skinner (1904–1990). In addition to his experimental work, Skinner popularized his ideas by way of a utopian novel, *Walden Two*, depicting a society that was organized on behaviorist principles and also through inventions, books, and essays—some of which contained lively philosophical argumentation and all of which were marked by clear and often provocative prose. Using rats, he studied "schedules of reinforcement" and found that to be "stamped in," a target response need not be reinforced every time it occurred—indeed, responses that had been intermittently and randomly reinforced persisted longer after reinforcement ceased than did responses that had been rewarded every time they had occurred. He demonstrated that a pigeon could be taught to dance in a rather short period of time by sequentially reinforcing random movements it made that happened to be in directions required by the dance. He

developed the "teaching machine," which delivered programmed instruction; the material to be learned was broken down into small units, each followed by a few questions, and if these were answered correctly, the learner was immediately reinforced by positive feedback and then allowed to proceed to the next small unit. Skinner called this process of reinforcing desired behavior that had been randomly generated in response to a particular setting or environment "operant conditioning" (for the target behavior was, of course, operating on that environment or situation).

Skinner was outspoken in his insistence that psychology must focus on observable behavior. He had studied some philosophy of science when logical positivism was influential, and thus he held that offering explanations of human behavior in terms of unobservable inner entities (ideas, motives, etc.) certainly was unscientific and possibly meaningless. He attacked the notion that humans were capable of acting autonomously by arguing that this transferred the causes of human action from environmental factors (e.g., rewards and punishments) to an unobservable and mysterious "inner" entity—to an inner autonomous, ghostlike creature. Nevertheless, he offered a small but carefully worded concession:

> A purely private event would have no place in a study of behavior, or perhaps in any science; but events which are, for the moment at least, accessible only to the individual himself often occur as links in chains of otherwise public events and they must then be considered. (1953/1966, p. 229)

This opened the way for psychologists to take seriously the existence of so-called intervening variables, and it possibly was a response to the work of another behaviorist, E. C. Tolman (1886–1959), who had produced evidence that seemed to indicate that rats running through a maze produced a mental map that could guide them when certain aspects of the layout of the maze were changed. (With hindsight, Tolman's work can be considered the point at which behaviorism started to erode.)

Skinner's work is subject to several criticisms. First, the relationship between behaviorism and the logical positivists' rejection of metaphysics (displayed in both Skinner's and Watson's attitudes toward unobservable inner processes or entities), which at the time appeared to be a strength, is now likely to be regarded as a weakness—for attitudes toward metaphysics have softened, and while metaphysical statements are untestable, nevertheless they can be discussed meaningfully and held open to criticism. Second, Skinner's attempt to account for all learning in terms of operant conditioning does not seem viable; there are many different types of learning, some, although not all, of which are given short shrift when discussed in purely behavioral terms. For example, learning a complex thing like Einstein's general theory of relativity does not seem explicable in terms of a mechanism that centers on reinforcement of randomly generated correct responses— how could one randomly generate a correct response to an involved question about relativity unless one actually understood the theory? And, of course, understanding is an "inner" mental process. The so-called cognitive revolution in psychology was able to make headway on matters such as this, and interest in behaviorism gradually faded. Another serious blow to Skinner came in a review of his behaviorist theory of language acquisition, written by the linguist and philosopher Noam Chomsky in 1959. Chomsky showed, among other things, that there were linguistic phenomena (such as the ability of youngsters to understand statements that were formulated using grammatical constructions that they had never come across before) that could not be accounted for in terms of reinforcement of responses.

Gilbert Ryle's Behaviorism

Not all philosophers agree that it is accurate to regard Gilbert Ryle as a philosophical behaviorist, but undoubtedly many of the issues he discusses in his *The Concept of Mind* (1949) are strikingly similar to those tackled in a more philosophically simplistic way by Watson and Skinner. The opening chapter of his book contains a lucid description of what he variously called the "Official Doctrine," "Descartes' Myth," or "the dogma of the Ghost in the Machine" and which he argued is "absurd." According to this dogma, a person is made up of two different entities—a physical body and a nonphysical mind that exists in time but not in space (which is why it cannot be directly observed). Thus, the events that occur in this latter entity are "inner" and private and can only be accessed by introspection. Ryle (1949) holds that "this antithesis of outer and inner is of course meant to be construed as a metaphor, since minds, not being in space, could not be described as being spatially inside anything else" (p. 12). From this dualism of mind and body, there also arises the intractable problem of how the immaterial mind can interact with, and affect the

actions of, the material body. He goes on to argue, among other things, that the dogma of the Ghost in the Machine generates a vicious regress: Intelligent behavior is made what it is, according to this absurd account, because it is caused by prior decisions and commands issued by this "inner" Ghost; but the Ghost's decisions can themselves sometimes be intelligent and sometimes unintelligent—so the Ghost must itself harbor some "inner" entity that makes its decisions intelligent or not, and so on! According to Ryle's account, a behavior is not made intelligent or skilled by what occurred prior to it in some mental domain; the behavior is *itself* intelligent or skilled.

Despite the criticisms that have accumulated over the years, the influence of behaviorism lives on in behavior modification regimes used in institutions, such as prisons and some psychiatric institutions, and, of course, it is present whenever a teacher or a parent praises or otherwise rewards a child for an achievement.

D. C. Phillips

See also Chomsky, Noam; Cognitive Revolution and Information Processing Perspectives; Evolution and Educational Psychology; James, William; Popper, Karl; Teaching Machines: From Thorndike, Pressey, and Skinner to CAI; Transfer of Learning

Further Readings

Chomsky, N. (1980). A review of B. F. Skinner's *verbal behavior*. In N. Block (Ed.), *Readings in philosophy of psychology* (pp. 48–63). Cambridge, MA: Harvard University Press. (Original work published 1959)

Huxley, A. (1958). *Brave new world*. Harmondsworth, England: Penguin Books. (Original work published 1932)

Russell, B. (1960). *An outline of philosophy*. New York, NY: Meridian. (Original work published 1927)

Ryle, G. (1949). *The concept of mind*. London, England: Hutchinson.

Skinner, B. F. (1961). *Cumulative record* (Enlarged ed.). New York, NY: Appleton.

Skinner, B. F. (1966). *Science and human behavior*. New York, NY: Macmillan. (Original work published 1953)

Thorndike, E. L. (1948). Animal intelligence. In W. Dennis (Ed.), *Readings in the history of psychology* (pp. 377–387). New York, NY: Appleton. (Original work published 1898)

Watson, J. B. (1928). *Psychological care of infant and child.* New York, NY: W. W. Norton.

Watson, J. B. (1948). Psychology as the behaviorist views it. In W. Dennis (Ed.), *Readings in the history of psychology* (pp. 457–471). New York, NY: Appleton. (Original work published 1913)

Watson, J. B. (1966). *Behaviorism*. Chicago, IL: University of Chicago Press. (Original work published 1925)

Bell Curve

The bell curve, also called the normal curve, is a graph shaped like a bell representing the symmetrical distribution of quantities around a midpoint when the median approximates the mean. The bell curve was originally designed to display binomial probability (coin toss) of infinite trials: the more times you flip a coin, the higher the probability that you will accumulate an equal number of heads and tails. However, the meaning of the bell curve has been radically transformed since its invention in the 1700s. Assumptions about bell-curve distributions have influenced epistemology, research protocols, and assumptions of normality in education. The bell curve has recently taken on more colloquial meanings (e.g., "grading on a curve"), and new debates have arisen since the publication of Richard Herrnstein and Charles Murray's (1994) *The Bell Curve*, which argued in terms of race that genetically heritable IQ (intelligence quotient) is the basis of socioeconomic inequality.

Throughout its history, the bell curve has functioned variously as a model of coin tossing, a means of reducing error in measurement, a model of a godly universe, fabrication of the Average Man, a depiction of patterns in population aggregates, a standard of normality in which average means ideal, and the assumed basis for racial discrimination. This entry examines both the history and current implications of the bell curve for educational theory and philosophy (Figure 1).

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

Standard deviations from the mean
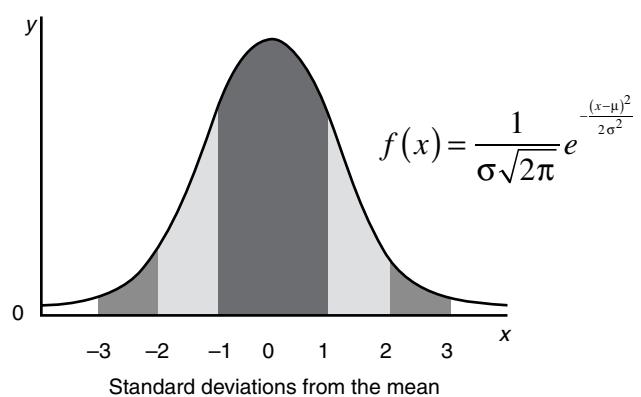
Figure 1   The Bell Curve Graph and Equation

History of the Bell Curve

The bell curve was invented to display binomial probability density and also as a mechanism for reducing error in astronomical measurements. From Abraham De Moivre's calculations in the early 1700s, the bell curve began as the "doctrine of chances." Early work on the bell curve contributed to Poisson's law of large numbers and influenced Maxwell's theory of kinetic gases. During the 1800s, the bell curve underwent several transformations before culminating in modern understanding as the assumed basis for normal distributions of empirical things in the social sciences.

Moral Statistics

Modern social sciences tend to treat the bell curve as if it were the product of empirical inference, a generalization derived from repeated measurements that consistently revealed bell-curve patterns of distribution. However, the history of the bell curve suggests otherwise. The bell curve was not discovered through empirical inference; it was posited a priori in the 1840s by Adolphe Quetelet, a Belgian statistician and astronomer. Quetelet believed that mathematical regularity was a sign of moral perfection. Extrapolating that a universe created by God would not be chaotic or asymmetrical, Quetelet supposed that empirical phenomena (including tides, births, and crimes) *must* be distributed in a bell curve, and it was the task of social scientists to create the statistical mechanisms that would make divine regularity apparent. He assumed that social phenomena would show the same regularity as celestial bodies. Quetelet began with a theological belief in the moral superiority of bell-curve distributions and superimposed the bell curve as the a priori model for data distribution in the empirical world.

Quetelet's reconceptualizations made it possible to export the bell curve from mathematics into social science. Social sciences then constructed quantification and statistical mechanisms that would tidy up numerical occurrences until they fit a bell-curve display. The modern 19th-century quest to establish grand narratives (explanations that were claimed to apply universally) provided a hospitable environment in which bell-curve thinking could flourish.

In sum, the bell curve does not exist in nature; it was imported from mathematics and superimposed on the social sciences as a theologically inspired organizational mechanism to make distributions in the empirical world appear as if they were mathematically regular.

Ideal Type

In the 1750s, the mathematician Thomas Simpson had used the bell curve as a means to reduce error in astronomical calculations: Multiple measurements of distances were averaged to approximate accuracy; outlying measurements were judged to be more erroneous the further they lay from the mean. In the 1840s, Quetelet imported this model of error reduction from astronomy into the social world. Remarkably, he reasoned that if taking the average of distance measurements would help us determine what was accurate in astronomy, then taking the average of human measurements could help us determine what was normal for a human being. Quetelet's statistical innovations created the concept of the Average Man (*l'homme moyen*), based on the assumption that the arithmetical mean of human characteristics is ideal or normal, and outlying features are indications of error or deviance. Quetelet also promoted the idea of "social physics," the belief that people en masse would behave according to the laws of physics. These innovations helped transform the bell curve from a representation of descriptive averages to a prescriptive ideal that has shaped modern beliefs about normality and abnormality.

Theoretical Implications of the Bell Curve

The bell curve forms the basis for much research design and social classification in education. In theory and philosophy, it is relevant to epistemology, normalization, and test design. The assumption of bell-curve distributions for investigating human qualities reflects and sustains beliefs in social inequality in which most people are perceived to be normal or average, while minorities are classified as exceptional or deviant.

Epistemology

Statistically speaking, there are two issues with bell-curve applications. First, the proper display of binomial probability distribution is a bar graph (which represents binomial variables), not a bell curve (which represents continuous variables). Second, the bell curve was originally constructed as a model for the distribution of *random* variables, not as a model of distribution for variables that are *not* random. Nineteenth-century critics rejected Quetelet's appropriation of the bell curve as a model

of the empirical world. Auguste Comte (founder of positivism) and John Stuart Mill observed that human life is affected by nonrandom variables such as heritage, volition, fortune, politics, and power; therefore, they argued, a bell curve is not an appropriate model for the social sciences.

The bell curve has helped establish conventional assumptions about what can be measured. If we want to produce a bell-curve distribution, we have to begin by identifying characteristics that display human diversity and then superimposing conventional dividing lines along continuums of difference (e.g., age, race, and gender) in order to demarcate discrete categories (just as we impose conventional dividing lines along the visible light spectrum to demarcate discrete colors). For example, many statistics textbooks use the example of height to illustrate normal distribution. However, height is not normally distributed in the general population; height is affected by nonrandom variables such as age, genetics, nutrition, and socioeconomic conditions. Measurements of height will display a bell-curve distribution only after we have first created particular discrete categories and then selected some categories, such as age and race, and dismissed others, such as class and blood type. Age-specific nutritional deprivation and adolescent growth spurt both affect height; however, nutritional deprivation and growth spurts have not generally been included as salient factors in height statistics because their inclusion would render a skewed curve instead of a bell curve (see A'Hearn, Perracchi, & Vecchi, 2009). In most social sciences, the bell curve comes first, and it then determines what is important to measure and what is not important. By these mechanisms, the bell curve influences assumptions about what counts as empirical.

In educational theory and philosophy, the key epistemological question is whether the bell curve should be regarded only as a display of probability functions for random continuous variables, or if it should also be used as a model of distribution for measurable things in the world.

What Counts as Normal

For much social science research, the bell curve underwrites definitions of normal in standards of measurement and research design. Quetelet's quantities were transformed in the 1800s to fabricate the Average Man; similarly, the bell curve has made it possible to fabricate the Average Student as the normal standard for designing curricular materials,

assessments, and "best practices" in education. By determining what can be measured in empirical studies, the bell curve helps uphold conventions for classification and assessment. These conventions then serve as a precondition for defining average as normal and rarity as deviant. In education, this stance is reflected in the terms *normal distribution* and *exceptional children.*

Bell-curve thinking in education creates a tension between average as normal and average as mediocre. Average behavior is sometimes valued (as normal) and sometimes devalued (as second rate); exceptional behavior is sometimes valued (as excellence) and sometimes devalued (as abnormal). Bell-curve thinking defines normal as frequent and abnormal as rarity. However, non-bell-curve thinking makes it possible to define normal and abnormal according to ethical (or utilitarian, or political) criteria rather than according to frequency distributions.

Test Design and Discrimination

A random collection of test questions would not yield a bell-curve distribution of results; test items must first be carefully revised and strategically combined before results will yield a bell curve. In the process of developing tests, questions are first piloted to determine whether the tests measure what they are expected to measure. Ultimately founded on Quetelet's theological belief that empirical things of the world should be distributed in a bell curve, standardized test questions are considered to be valid when results produce a bell-curve distribution and a robust discrimination index (the level of precision in ranking made possible by a test item). New tests must be "normed," which means the test items are repeatedly revised until new tests reproduce the same bell-curve distribution that was established by previous versions of the test.

The bell curve is also a necessary component of IQ testing. Between 1908 and 1911, the French psychologists Alfred Binet and Theodore Simon invented a battery of tests called the Binet-Simon scale. In 1916, Lewis Terman published the Stanford Revision, which was based on a purposeful sample of 981 middle-class White nine-year-olds in California. Stanford researchers made several fundamental changes to the original Binet-Simon scale, one of which was to assume a bell curve as the basis for validating the test questions; by definition, half of all IQ test takers are assigned scores below 100, and half are assigned scores above 100.

The Stanford-Binet test also expressed IQ as a single number (which contravened Binet's earlier directives) and attributed IQ to inheritance rather than environment.

In their 1994 book *The Bell Curve,* Herrnstein and Murray maintained the Stanford assumption that intelligence is heritable. They also argued that variations in IQ scores among racial groups are evidence of genetic differences in cognitive ability and that differences in IQ cause social and economic inequality. Therefore, they argued, public policy should be based on an acceptance of a cognitive elite. The main arguments against Herrnstein and Murray's claims are that intelligence is not immutable, intelligence is not a single "g factor," the analysis confounds correlation with causation, and the premises are fundamentally racist.

The history of the bell curve suggests that the main purpose of IQ testing has been not to measure human characteristics but rather to establish social stratifications. Such stratifications are made possible because of the fallacious belief that the bell curve exists in nature.

Lynn Fendler

See also Abilities, Measurement of; High-Stakes Testing; Intelligence: History and Controversies; Probability and Significance Testing; Social Darwinism

Further Readings

A'Hearn, B., Perracchi, F., & Vecchi, G. (2009). Height and the normal distribution: Evidence from Italian military data. *Demography, 46*(1), 1–25. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2831262/

Fendler, L., & Muzaffar, I. (2008). The history of the bell curve: Sorting and the idea of normal. *Educational Theory, 58*(1), 63–82.

Fischer, C. S., Hout, M., Jankowski, M. S., Lucas, S. R., Swidler, A., & Voss, K. (1996). *Inequality by design: Cracking the bell curve myth*. Princeton, NJ: Princeton University Press.

Gould, S. J. (1996). *The mismeasure of man*. New York, NY: W. W. Norton.

Hacking, I. (1990). *The taming of chance*. Cambridge, England: Cambridge University Press.

Herrnstein, R. J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life*. New York, NY: Free Press.

Stigler, S. M. (1986). *The history of statistics: The measurement of uncertainty before 1900*. Cambridge, MA: Belknap Press of Harvard University Press.

Wallace, B., & Graves, W. (1995). *The poisoned apple: The bell curve crisis and how our schools create mediocrity and failure*. New York, NY: St. Martin's Press.

BILDUNG

The philosopher Wilhelm von Humboldt (1767–1836) used what originally was the pietistic and theological term *Bildung* to refer to the humanistic ideal of self-cultivation and self-transformation. It is likely that he borrowed the term *Bildung* from the biologist Johann Friedrich Blumenbach (1752–1840), who claimed that all organisms possess a so-called *Bildungstrieb* ("drive of development"). *Bildungstrieb* refers to a force inherent in organisms—including humans—that has an implicit goal toward self-realization and self-perfection (*Vervollkommnung*). Such a biological view was most probably much more influential on Humboldt's thinking than the mystic or pietistic origins of the term. This entry reviews the evolution of this educationally important concept, from its initial elaboration in the era of the Enlightenment through successive phases of its development to its recent encounter with postmodern and poststructuralist currents in educational discourse.

Historical Background

It should be stressed at the outset that Bildung is not exclusively a German concept, as is sometimes stated in educational discourse. Rather, the topic of the educated mind is a central one in most educational theories and philosophies in various cultures, languages, and epochs. The idea of Bildung understood as human development and an end in itself can also be found in the Anglo-Saxon tradition of liberal education—but there are, of course, important differences with regard to the details.

Nevertheless, the German literature has been prolific; in it, the concept of Bildung refers to "the inner development of the individual, a process of fulfillment through education and knowledge, in effect a secular search for perfection, representing progress and refinement both in knowledge and in moral terms, an amalgam of wisdom and self-realization," (pp. 53–54) as Peter Watson (2010) tried to define it for an English-speaking community. German thinkers—for instance, Moses Mendelssohn and Johann Gottfried von Herder—identified Bildung with the Enlightenment, a view that might not be

obvious. It is important here to remember that the German Enlightenment (*Aufklärung*) came later in history than the French, English, and Scottish Enlightenments. The German *Aufklärer*—"men of Enlightenment"—could borrow from their neighbors and their achievements.

Whereas the idea of societal change was widely accepted in late-17th-century and early-18th-century Europe, the German Enlightenment specifically focused on the direction, logic, and meaningfulness of change. German intellectuals were fascinated by the French Revolution at first but later were disgusted by the postrevolutionary terror. To them, this was a remarkable backlash to the hope of political progress and freedom. In the early Western Enlightenment period, freedom was understood as an outward, definitely political concept; in the later German Enlightenment, in contrast, the predominant understanding of freedom was characterized by a rather aesthetic dimension: not outward but internal freedom. This shift from a political understanding of the Enlightenment—as in France, and also England or Scotland—to the German inwardness (*Innerlichkeit*), as realized in the concept of Bildung, can at least to a certain degree be interpreted as the desire of German intellectuals to escape from a brutal and on the whole disappointing postrevolutionary world to a place where humankind could seek secular perfection. It is not surprising, then, that today the notion of humanist Bildung is critically discussed not only as an aesthetic escape from a world in which political and juridical issues are urgent (an intellectualized refusal to adopt a political attitude toward the world) but also as a *secularized theology*.

The Notion of Bildung

Today's educational discourse in the German-speaking countries distinguishes between Bildung ("the acquisition and/or possession of formal, most of all academic, knowledge") and *Erziehung* ("upbringing and character development"). On the other hand, professional and academic development and support (training or vocational education) are usually called *Ausbildung* (see Winch & Gingell, 2008, p. 25). Whereas Erziehung is understood as intersubjective interaction and as a process of intentional influencing, the *traditional* concept of Bildung means self-formation or self-cultivation, and it is sometimes also understood as self-upbringing, that is, it refers to inner-subjective or subjectivating

processes (see Schneider, 2012). The notion involves a reversal of the usual way of understanding oneself and the world; but in this context, the resistance of the world (or of experience) against this self-developmental process is—according to von Humboldt—considered to be highly significant (see Dörpinghaus et al., 2006, p. 71).

Bildung is considered to have an objective as well as a subjective dimension. The former refers to "culture" as a philosophical, scientific, aesthetic, or moral interpretation of the world, either referred to as *Allgemeine Menschenbildung* ("general human education") or as *Allgemeinbildung* ("broad educational experience"). The latter refers to the specific ways individuals acquire the objective content of culture. Indeed, it might be said that what groups of humans perceive as culture (whether ethnicity, national identity, community, etc.) is Bildung at the level of the individual. Jürgen-Eckhardt Pleines (1971/1989a) suggested a systematization of the educational meaning of the concept of Bildung that is still convincing today, knowing full well that a "premature determination of its meaning or a structural reduction of its original meaning will result in its decline and thus in the leveling of its originally intended contents" (p. 12). Pleines refers to Bildung (1) "as a valuable commodity which must be strived for," (2) "as a state of mind," (3) "as a process of mind," (4) "as a permanent task," (5) "as human's self-fulfilment in freedom," and, finally, as pointing to (6) the "educated ('*gebildet*') person and his/her Bildung of reason and heart" (pp. 12–38).

Recent Attempts at Reformulation

Since the mid-20th century, in the course of the broad establishment of the social sciences in the educational discourse, there have been efforts to replace the concept of Bildung by concepts such as deculturation, socialization, ego identity, development, and qualification. Thus, the concept of Bildung went through periods of trivialization and sometimes complete transformation. The ambiguity and vulnerability of the (original) concept of Bildung have nevertheless not resulted in the idea of Bildung being replaced satisfactorily by the surrogates that have been suggested. For instance, Hansmann (1988) demonstrated convincingly how each of the claimed theoretical equivalents, such as scientific orientation, socialization, qualification, Erziehung ("upbringing"), or teaching, fail to go into sufficient depth.

Insightfully, Friedrich Schweitzer (1988) also argued against equating (ego) identity and Bildung.

It must not be overlooked, here, that the term can be defined only in what has sometimes been called a cumbersome way, possibly "because the idea of Bildung is an essentially social idea, thus having different meanings according to the various customs and interpretations" (Musolff, 1989, p. 9). Thus, following H. Posner (1988), it might have to be accepted that "Bildung, one of the crucial terms of philosophical anthropology and education . . . [is] at the same time one of the most blurred ones" (p. 23). Wolfgang Brezinka (1972) went even further and called the term "almost empty" (p. 62).

In the 1980s, after having gone through something of a crisis, Bildung experienced a renewed boom, maybe precisely because of the social challenges the educational sciences were actually confronted with in those days and which have escalated since. The revitalization of the concept of Bildung as a result of the changes triggered by an "ever more radicalizing modernity" does not mean that its history can be left behind. This is not the place to speculate about the reasons for this revisitation and for why the concept is discussed even by political authorities (see Posner, 1988). It may simply be stated that the concept of Bildung has both experienced a renewal of significance and become even more difficult to grasp.

An essential aspect of Bildung is the idea, explicitly or implicitly shared by the various ways of understanding it, that it is a mediator between the "unity of the individual" and the "totality of the world" (Posner, 1988, p. 26). One may imagine this mediation as a process, a state, or a goal. The ideals of educational objectives (responsibility, independence, self-determination, reasonable practice, etc.) thus provide the concept of Bildung with its "typical dignity" and make it a regulative idea of general education and educational theory—"a place of normative understanding within it" (Miller-Kipp, 1992, pp. 18–19). In whichever way the term is used, the point remains that the actual referent of the concept of Bildung is the subject as a self-educating individual or an individual undergoing education. Thus, educational theory cannot avoid questions concerning the constitution of the subject—not only in the philosophical but also in the psychological and sociological sense.

Whereas Bildung as self-cultivation and an end in itself is certainly not a constitutive idea of the (empirical) description of education and educational processes, the question remains whether it still has the power (or should have the power) to function as a regulative idea in modern societies. The latter are strongly affected by instrumentalist and pragmatist worldviews that provide seemingly convincing tools to approach practical problems and decision-making processes, especially in the domain of education. Nevertheless, it is the very lack of humanistic regulative ideas in educational discourse that seems to be the source of the widespread feelings of malaise and even crisis in modern education. As economic rationality continues to colonize the *Lebenswelt*, or lifeworld, the humanistic and modern project of moral betterment, both of the individual and of humankind, is at stake. For more than 20 years, there have been attempts to radically question the concept of Bildung from a poststructuralist and postmodern point of view, but there have also been—and will continue to be—attempts to transform it (see Masschelein & Ricken, 2003).

Roland Reichenbach

See also Dewey, John; Education, Concept of; Liberal Education: Overview

Further Readings

Brezinka, W. (1972). *Von der Pädagogik zur Erziehungswissenschaft: Eine Einführung in die Metatheorie der Erziehung* [Of the pedagogy for science education: An introduction to the metatheory of education] (2nd improved ed.). Weinheim, Germany: Beltz.

Dörpinghaus, A., Poenitsch, A., & Wigger, L. (2006). *Einführung in die Theorie der Bildung* [Introduction to the theory of education]. Darmstadt, Germany: Wissenschaftliche Buchhandlung.

Hansmann, O. (1988). Kritik der sogenannten "theoretischen Äquivalente" von "Bildung" [Criticism of the so-called "theoretical equivalents" of "education"]. In O. Hansmann & W. Marotzki (Eds.), *Diskurs Bildungstheorie I: Systematische Mar-kierungen* [Discourse formation theory I: Systematic markings] (pp. 21–54). Weinheim, Germany: Deutscher Studien Verlag.

Masschelein, J., & Ricken, N. (2003). Do we (still) need the concept of Bildung? *Educational Philosophy and Theory, 35*(2), 139–154.

Miller-Kipp, G. (1992). *Wie ist Bildung möglich? Die Bildung des Geistes unter pädagogischem Aspekt* [How is education possible? The formation of mind under the aspect of education]. Weinheim, Germany: Deutscher Studien Verlag.

Musolff, H.-U. (1989). *Bildung: Der klassische Begriff und sein Wandel in der Bildungsreform der sechziger Jahre* [Education: The classical concept and its transformation in the educational reform of the sixties]. Weinheim, Germany: Deutscher Studien Verlag.

Pleines, J.-E. (1989a). Die Pädagogische Bedeutung des Begriffs "Bildung" [The educational significance of the term "Bildung"]. In *Studien zur Bildungstheorie* [Studies in education theory] (pp. 7–62). Darmstadt, Germany: Wissenschaftliche Buchgesellschaft. (Original work published 1971)

Pleines, J.-E. (1989b). *Studien zur Bildungstheorie* [Studies in education theory]. Darmstadt, Germany: Wissenschaftliche Buchgesellschaft.

Posner, H. (1988). Ist Bildung durch Wissenschaft heute noch ein realistisches Ziel? [Is education through science today still a realistic goal?] In F. Edding (Ed.), *Bildung durch Wissenschaft in neben- und nachberuflichen Studien* [Education through science in addition to and following professional studies] (pp. 22–37). Berlin, Germany: Max-Planck-Institut für Bildungsforschung.

Schneider, K. (2012). The subject-object transformations and "Bildung." *Educational Philosophy and Theory, 44*(3), 302–311.

Schweitzer, F. (1988). Identität statt Bildung? Zum Wandel pädagogischer Leitbegriffe [Identity instead of education? Guiding principles for educational change]. In O. Hansmann & W. Marotzki (Eds.), *Diskurs Bildungstheorie I: Systematische Markierungen. Rekonstruktion der Bildungstheorie unter den Bedingungen der gegenwärtigen Gesellschaft* [Discourse formation theory I: Systematic marks. Reconstruction of educational theory under the conditions of the present society] (pp. 55–73). Weinheim, Germany: Deutscher Studien Verlag.

Watson, P. (2010). *The German genius. Europe's third renaissance, the second scientific revolution and the twentieth century*. London, England: Simon & Schuster.

Winch, C., & Gingell, J. (2008). *Philosophy of education: The key concepts* (2nd ed.). London, England: Routledge.

BILINGUAL EDUCATION

Bilingual education can be broadly defined as a program that employs more than one language as the medium of instruction for the curriculum. It may be distinguished from foreign-language or second-language education, in which proficiency in the language is the goal and the curriculum is organized around the attainment of various levels of proficiency in the foreign or second language rather than in the content areas across the curriculum (e.g., math, science, and literacy).

The rationale for delivering instruction bilingually can vary significantly and depends on a wide variety of social, political, and historical circumstances related to the status of the language and its speakers. During periods of ethno-linguistic pride asserted by language minority groups, bilingual education may serve as a symbolic point for the linguistic rights of minorities. During periods of heightened interest in foreign economic competitiveness or a heightened sense of national security, bilingual education may become an instrumental means for students to develop high levels of proficiency otherwise unattainable through traditional foreign-language programs. In societies where bilingualism (or multilingualism) is official, such as in Canada or Switzerland, bilingual education may become an instrument through which the recognition of the languages is politically negotiated between the officially recognized ethno-linguistic groups.

Typically, immigrant languages have less prestige, and during times of linguistic nationalism, the recognition of nonmajority languages through bilingual education becomes an object of symbolic politics. The English-only movement in the United States, for example, has seen bilingualism in any form—bilingual education, bilingual ballots, bilingual social services—as incompatible with the unifying forces of an official language, and the movement has used the label "bilingual" as an instrument of wedge politics. Indigenous languages may carry the weight of incumbency in the territory, but the act of recognizing indigenous languages is complicated by the history of invasion and occupation by the majority language, making it different from the recognition of immigrant languages.

In the United States, bilingual education often serves as a transitional program in which the native language of the immigrant or language minority group is used as a crutch while students are given time to learn English. These programs, however, do not support development in the native language once the students have learned enough English to survive in the monolingual environment. An alternative approach is one that values the native language and attempts to maintain it. Maintenance bilingual programs continue to develop literacy in the native language, and in the case of dual-immersion programs, native speakers of English whose parents value, and wish their children to learn, the language

of the immigrant community participate, so that the bilingualism is developed in both directions.

The effectiveness of bilingual education programs is difficult to evaluate because the educational goals vary significantly—for example, proficiency in the two languages may be a key goal of some programs, but others, such as the French immersion programs in Canada, are keenly concerned about demonstrating that the Anglophone students participating in these programs are not losing ground in their academic achievement as measured in English. Others, such as bilingual programs in the United States, are mainly concerned with equitable attainment of academic achievement by nonnative speakers of English compared with monolingual English speakers, as measured through English tests. In general, it is safe to conclude that well-implemented bilingual education programs attain their specific objectives but that the outcomes vary considerably depending on the background characteristics of the students who enroll in these programs. Favorable outcomes are more often found among middle- and upper-class students.

Guest-worker programs, such as bilingual programs for the children of Turkish workers in Germany, provide an additional angle on bilingual education. In these programs, the ultimate motive for supporting the home language is to enable a smoother return to the home country for the students and their families. The concern is the rapid shift that might otherwise occur even among the guest-worker communities, where the dominant language becomes the language of the host country.

Second-Language Acquisition and Instruction

The nature of language is central in how second-language acquisition is supported in bilingual education programs through the curriculum, the instruction, and the training of teachers. Linguists analyze language in terms of its phonological, morphological, syntactic, semantic, pragmatic, and sociolinguistic properties. Second-language acquisition seen as developing knowledge of a set of rules (e.g., how past tense is marked) or developing a set of educational practices (e.g., constructing an explanation) will result in vastly different curricular arrangements and expectations for teacher knowledge about language.

A related issue is how explicitly various aspects of language need to be addressed in the curriculum. A question that concerns practitioners is whether or not to dedicate specific time in the curriculum to the various analytic aspects of language or whether these aspects of language can develop naturally and incidentally in the course of academic content instruction—for example, learning the language during math and science instruction.

Sources of Variation in Second-Language Acquisition

Researchers in the development of bilingualism have investigated a number of hypotheses about individual variability in the outcomes of second-language acquisition. These include the age of the learner, socioeconomic background, language status, learner personality, and learner motivation.

The most discussed is the age of the learner. In its boldest form, this can be stated as a hypothesis about a biologically founded critical period for second-language acquisition. This hypothesis would imply that before a certain age (often somewhere between the ages of 5 and 15), the second language is learned quickly and automatically, using mechanisms similar to what was available for learning the first language. After the critical period, learning can only be achieved through alternative mechanisms. Although appealing, this hypothesis finds little support. The most carefully conducted research shows an age-related decline throughout the life span and no documentation of dramatic differences between those before or after a proposed critical period.

Socioeconomic background, including the home literacy levels of the students, provides another important source of differences between students. Programs that appeal to middle-class students show stronger outcomes than those for lower-class students, and even within programs, student home background is a strong predictor of ultimate learning among the students. These data track the general findings of educational outcomes related to social class.

Individual psychological factors such as personality, motivation, and social psychological variables have been investigated extensively within foreign-language programs, but less so within bilingual education programs, with the exception of Canadian bilingual programs, where they have shown predictive power in student learning outcomes.

Benefits of Bilingualism

An aspect of bilingualism often overlooked by educators is the potential benefits of bilingualism on

some specific aspects of cognition, including meta-linguistic awareness, attentional control, and executive function. Bilingual children show advantages on a variety of tests of psychological functioning in these areas over comparable monolingual children. In addition, there is emerging evidence from hospital records for the substantial delay of onset of dementia for bilinguals. Thus, in addition to the direct linguistic and educational benefits of bilingual education, there is emerging evidence of the long-term health benefits of bilingualism. Although the research is still far from pointing to specific educational interventions that might result in bilingualism, it suggests that the field of bilingual education has prospects that extend well beyond a compensatory framework of bilingualism to a far-reaching vision embracing people's longevity and mental acuity.

Kenji Hakuta

See also Equality of Educational Opportunity; Immigrants, Education of; Language Acquisition, Theories of

Further Readings

Baker, C. (2011). *Foundations of bilingual education and bilingualism*. Bristol, England: Multilingual Matters.

Crawford, J. (1999). *Bilingual education: History, politics, theory and practice* (4th ed.). Los Angeles, CA: Bilingual Education Services.

Ellis, R. (2008). *The study of second language acquisition* (2nd ed.). Oxford, England: Oxford University Press.

Genesee, F., Lindholm-Leary, K., Saunders, W., & Christian, D. (2006). *Educating English language learners*. New York, NY: Cambridge University Press.

Romaine, S. (1995). *Bilingualism* (2nd ed.). Malden, MA: Blackwell.

BOURDIEU, PIERRE

See Reproduction Theories

BRUNER, JEROME

The psychologist, philosopher, and pragmatist Jerome Bruner (b. 1915) has borne witness to the wide-ranging and wild enthusiasms of the field of psychology—behaviorist, cognitivist, cultural, developmental—for more than 65 years. Repeatedly, he has played important roles in authoring and critiquing his field (including his own earlier work), fearless in his embrace of the complexity of the human condition and vigilant in considering how social science can shape and be shaped by important social issues. His research included work on how people process information and on the early development of spoken language. This entry discusses the breadth of Bruner's research, his political involvement in education, and his influence on psychology and education.

Born in New York City, with degrees from both Duke University (BA, 1937, Psychology) and Harvard University (MA, 1939; PhD, 1941, Psychology), Bruner has held positions at Harvard, Oxford, the New School of Social Research, and New York University. His oeuvre includes 20 books on topics ranging from cognition and learning, to knowing and meaning, to narrative and language, to education and law. *The Process of Education* (1963), his summary of a summit meeting of leading scientists and social scientists drawn together to respond to the "missile gap" crisis in the wake of Russia's launch of Sputnik, the world's first artificial satellite, has been translated into 21 languages. Drawing widely on disciplinary tools from anthropology, psychology, linguistics, and literary theory, and consistently embedding himself within interdisciplinary communities, Bruner has always exhibited an *esprit de finesse*—the ability to hold together a number of elements in nice balance—understanding that an infinite range of factors, known and unknown, shape the human condition (Geertz, 1997).

Bruner started his career at Harvard with a study of the "helplessness" of imprisoned rats. He quickly became part of the generation of psychologists in the 1950s who brought the mind back into the discipline "after a long cold winter of objectivism" (Bruner, 1990, p. 1). Rejecting studies of stimuli and responses, Bruner and his colleagues were taken with understanding how people reason, feel, imagine, and know. As cognitive studies—a field he helped create—grew, Bruner became a strong critic of how cognitive "science" had—ironically enough—dehumanized the mind, virtually estranging psychology from the arts and humanities.

In response, Bruner eventually helped lead a "cultural" revolution within psychology, drawing heavily on anthropology and arguing that the mind is not "programmable" but rather is a social and historical achievement. In his own research, Bruner sought to understand how language develops (especially among the young) and how cultures shape the

mind. Central to this has been his work on narrative and how cultures and individuals use stories to shape their own and others' lives. Bruner has been honored with 25 honorary degrees, a Festshrift (Olson, 1980), a volume of essays on his philosophy (Bakhurst & Shanker, 2001), and the International Balzan Prize (in 1987); he is a fellow of the American Academy of Arts and Sciences.

Major Themes

In the 1950s, Bruner was one of several early leaders of psychology's cognitive revolution. Instead of focusing on stimulus and response, and operant and classical conditioning, Bruner and his colleagues—Ulric Neisser, Donald Broadbent, George A. Miller, and Noam Chomsky among them—sought to describe how humans made meaning from their encounters with the world. Based on earlier empirical work that he had done on children's perceptions, Bruner supported a "New Look" psychology that focused on humans' interpretations of events and objects, rather than simply documenting their observed responses to stimuli. In *A Study in Thinking* (Bruner, Goodnow, & Austin, 1956), Bruner and his colleagues reported on a series of groundbreaking studies on human concept formation and inductive reasoning, and the work is considered a classic in the so-called cognitive turn in psychology. Shortly afterward, Bruner and Miller founded Harvard's Center of Cognitive Studies, which became a leading think tank for interdisciplinary teams of anthropologists, linguists, historians, philosophers, and psychologists who were documenting how humans make meaning.

By his own account, Bruner's (2006a) interest in education arose in the 1950s as he witnessed the "desperate ideological struggles" of the time. When Sputnik was launched, concerns about science education rose, with U.S. policymakers arguing that the "missile gap" between the Soviet Union and the United States was a national, political, and intellectual threat. The National Science Foundation responded, supporting numerous curriculum development projects that involved research scientists and mathematics around the country. Bruner, who had been pulled into helping Jerrold Zacharias at MIT (Massachusetts Institute of Technology) with his Physical Science Study Committee work, was invited to cochair (with Zacharias) a meeting convened at Woods Hole, Massachusetts, in which the investigators on these projects deliberated about curriculum, the role of cognitive psychology in education, and

the future of mathematics and science education. This led to one of Bruner's most important works, *The Process of Learning*, and later to his work on the development of the controversial social studies curriculum, *Man: A Course of Study* (MACOS). MACOS, which was based on Bruner's idea of a "spiral" curriculum, was a humanities program meant to teach students about the life spans of living things—from salmon to reindeer to humans. The curriculum was designed to provoke students to ask questions, including questions about morality. Fundamentalist groups, in particular, raised rancorous objections, as documented in the film *Through These Eyes* (2004). Not one to shy away from controversy, Bruner became increasingly aware of the political currents that swirl around educational initiatives. His baptism by fire through MACOS appears to have only deepened his commitment to proactively engage in the politics of education: Throughout the 1960s, he served as a member of the Educational Panel of the President's Science Advisory Committee to both Presidents Kennedy and Johnson.

Bruner's interests in cognition and meaning making then led him to investigate the conditions for the early development of spoken language. His research convinced him that young children are powerfully proactive in their own learning and capable of developing conceptual powers at a young age. That work also taught him the damaging effects of poverty on early mental development. As a consequence, he was among the social scientists who argued for what became the Head Start program. While his own work led him to chafe at the "deprivation" theory that animated some of the federal Head Start work, Bruner was vehement in his conviction that poverty was the enemy of young children's minds.

In the 1970s, Bruner continued this empirical, theoretical, and political work in Great Britain, where he taught at Oxford and teamed up with colleagues, including Harry Judge, to work in the Preschool Research Group and later with the Preschool Playgroup Association. Here too, social scientists and humanists investigated young children, language, and development and worked to persuade the then minister of education, Margaret Thatcher, of the critical role of preschools in young children's development. As had been the case in the United States, while at Oxford, Bruner swam in the broader intellectual currents of the time, most notably the linguistic turn in Oxford philosophy, which led him to reconsider how communicative intentions

shape language use and structure. The combination of theoretical and empirical work shed new light for Bruner on how cultures shape the mental development of their members, including children. This work eventually led to the "cultural" revolution in psychology, a shift that pressed for a conception of the self that acknowledged how our selves are not "isolated nuclei of consciousness" but instead are constructed by society and history (Bruner, 1990).

On returning to the United States in the 1980s, Bruner moved back to New York City, where he joined the faculty of the New School for Social Research and later the faculty at New York University, where he is currently a member of both the Department of Psychology and the School of Law. Drawing again from broader intellectual currents, he then used the writing of authors like Julian Barnes, Milan Kundera, and Jacques Derrida to consider the role of narrative in meaning making. Bruner (1996) became convinced that human beings "live in a sea of stories" (p. 147), most often authored by the cultures in which we live. His recent work (e.g., Bruner, 2003) explores how we learn through the stories we tell and are told.

A restless thinker, play has always been an important theme in Bruner's work. He saw play as a way to tap into our cognitive powers and rethink possibility. This playfulness has led him to ignore boundaries—between conceptual and empirical work and between disciplines and fields of study. He has been, at once, an intellectual—trying on ideas from across fields, ever vigilant about the limitations any scholar faces in explaining something as complex as the mind and how one constructs meaning or learns—and an activist/teacher, whether proposing theories of instruction, creating curricula, or arguing for programs like Head Start. And the stories Bruner has told us—about the mind, about children, about teaching and learning, about narrative and culture—have shaped contemporary psychology and education in profound ways.

Suzanne M. Wilson

See also Cognitive Revolution and Information Processing Perspectives; Knowledge, Structure of: From Aristotle to Bruner and Hirst; Narrative Research

Further Readings

Bakhurst, D., & Shanker, S. G. (2001). *Jerome Bruner: Language, culture and self.* London, England: Sage.

Bruner, J. S. (1963). *The process of education.* New York, NY: Vintage Books.

Bruner, J. S. (1990). *Acts of meaning.* Cambridge, MA: Harvard University Press.

Bruner, J. S. (1996). *The culture of education.* Cambridge, MA: Harvard University Press.

Bruner, J. S. (2003). *Making stories: Law, literature, and life.* Cambridge, MA: Harvard University Press.

Bruner, J. S. (2006a). *In search of pedagogy* (Vol. 1). New York, NY: Routledge.

Bruner, J. S. (2006b). *In search of pedagogy* (Vol. 2). New York, NY: Routledge.

Bruner, J. S., Goodnow, J. J., & Austin, G. A. (1956). *A study in thinking.* New York, NY: Wiley.

Cipolla, C. M. (1992). *Between two cultures: An introduction to economic history.* New York, NY: W. W. Norton.

Geertz, C. (1997). Learning with Bruner. *New York Review of Books, 44*(6), 22–24.

Olson, D. (1980). *The social foundations of language and thought: Essays in honor of Jerome S. Bruner.* New York, NY: W. W. Norton.

BUBER, MARTIN

Martin Buber (1878–1965) was a prominent 20th-century philosopher, Jewish religious thinker, and cultural Zionist whose well-known distinction between I–Thou and I–It relations formed the basis for a unique philosophy of education, with distinctive conceptions of learning for meaning, teacher–student relations, and the role of education in the cultivation of community. In addition to its impact on Jewish thought and education in Israel and abroad, Buber's philosophy of dialogue exercised considerable influence on Nel Noddings's (1984) ethics of care, Emmanuel Levinas's (1998) ethics of responsibility, and the work of Protestant theologians such as Paul Tillich (1948, 1952).

Born in Vienna in 1878, Buber was raised by his paternal grandparents in Lemberg (Lvov). His grandfather, Solomon Buber, was an important Jewish communal leader and scholar who edited the first critical edition of the traditional rabbinic biblical commentaries. Martin was educated in Vienna, Leipzig, Zurich, and Berlin, after which he was appointed the first lecturer in Jewish Religious Philosophy and Ethics at the University of Frankfurt, where he taught until 1935, when he accepted a chair in Social Thought at the Hebrew University of Jerusalem. He is best known for his 1923 classic

I and Thou (*Ich und Du*) and a series of influential works on the philosophy of dialogue, but he also published extensively on the Hebrew Bible, which he translated into German with his colleague Franz Rosenzweig, and the modern Jewish mystical sect known as Hasidism, from which he drew inspiration for his dialogical thought. Buber died in Jerusalem in 1965.

According to Buber (1970), life's meaning and purpose are discovered in moments of I–Thou, or subject–subject, relation—in which one receives another into oneself for the sake of meeting as an end unto itself—but they are implemented through I–It, or subject–object, relations—which are maintained for utilitarian purposes. Whereas subject–subject relations cannot be contained within rules or formulas, subject–object relations are so constrained. Indeed, any attempt to express the pure encounter of an "I" with a "Thou" in rituals or laws already transforms the meeting into an instrumental relation. God, in Buber's view, is uniquely and "eternally Thou," to be glimpsed in the meeting of one subject with another. Encounters of this kind transpire not only between people but also between people and texts, objects, natural settings, musical pieces, and artistic creations.

The Hebrew Bible, the prophetic tradition in particular, records just such an encounter between God and the people of Israel, and the mystical tradition in Judaism represented by Hasidism constitutes an especially authentic representation of the divine–human encounter (Buber, 1958). In contrast to many orthodox interpretations of Jewish tradition, Buber held an antinomian view of religion believed to share much in common with Protestant Christianity, especially as interpreted by the likes of the existentialist theologian Paul Tillich (1952). Buber (2003) held, however, that the Hebrew Bible grounds faith in mutual trust between God and human beings whereas Christianity places greater emphasis on specific beliefs about God, that He exists, for example, or took a human form as Jesus of Nazareth, who suffered and sacrificed Himself to redeem humankind from sin.

Buber (1963) translated his religious existentialism into a utopian political theory called Hebrew humanism, tied closely to his Zionist convictions. In this view, the return of the Jewish people to the land of Israel offers a unique opportunity to reinvent the sort of political community envisaged by the Hebrew Bible, grounded in the qualities of dialogue and mutuality that he saw in Hasidism. The kibbutz movement of collective farming villages, which mixed socialism with a drive to connect physically to the land of Israel, is a good example of such a utopian community. Similarly, he envisaged the State of Israel as a binational state in which Jews and Arabs would live in peaceful coexistence grounded in mutual respect and dialogue (Buber, 1983).

Buber (2002) also made important contributions to educational thought. In his inaugural lecture at the opening of the Lehrhaus Judaica in Frankfurt in 1920, Buber extended his distinction between subject–subject and subject–object relations to the curriculum by distinguishing between *Lehrnen* and *Lehrnstat*. The former engages matter to be studied as a subject for encounter, to be incorporated into one's being as a source of value and direction, while the latter formalized information as an object, for the purpose of the discovery or construction of knowledge. Instruction in modern schools and universities has tended to emphasize the latter; the Lehrhaus, which he launched with Franz Rosenzweig as an updated rabbinic house of study, would cultivate the former (Rosenzweig, 2002). This subject–subject pedagogy requires a distinctive relation between teachers and students grounded in dialogue. However, as Nel Noddings (1984) would later emphasize in her "ethic of care," teacher–student dialogue is not completely mutual; the teacher gently guides the student in ways that need not be reciprocated, confirming his or her more elevated qualities along the way. An education grounded in *Lehrnen*, in which teachers confirm the ability of their students to develop into unique people in their own right, is essential to the sort of utopian community that Buber envisaged.

Buber's Jewish and philosophical positions were criticized on a number of grounds. Gershom Scholem (1937), who founded the academic study of Jewish mysticism, argued that Buber overly romanticized Hasidism and underestimated the power of divine commandment in Jewish mysticism. The Modern Orthodox theologian Elieser Berkovits (1962) extended this critique to Buber's antinomian account of religious law altogether, and Walter Kaufman (1983), who translated *I and Thou* into English, similarly suggested that Buber's conception of relation mistook "deep emotional stirrings for revelation." Franz Rosenzweig (2002) asked why it is impossible to encounter religious practices in dialogue, since Buber held that we can meet texts, nature, music, and art in this way. Surely, Rosenzweig reasoned, we should be able to transform objective

laws (*Gesetz*), which derive their extrinsic authority from the divine, into subjective commandments (*Gebot*), in which the call to observe is heard intrinsically, from within. Finally, the phenomenologist Emmanuel Levinas (1969, 1998) challenged the role of mutuality in Buber's conception of dialogue, arguing that in relation one has an absolute obligation to accept responsibility for the other regardless of whether or not this attitude is reciprocated by the other toward oneself.

Hanan Alexander

See also Noddings, Nel; Phenomenology; Religious Education and Spirituality; Utopias

Further Readings

Berkovits, E. (1962). *A Jewish critique of the philosophy of Martin Buber*. New York, NY: Yeshiva University.

Buber, M. (1958). *Hasidism and modern man* (M. Friedman, Ed. & Trans.). New York, NY: Harper Torchbooks.

Buber, M. (1963). *Israel and the world: Essays in a time of crisis*. New York, NY: Schocken.

Buber, M. (1970). *I and thou* (W. Kaufman, Trans.). New York, NY: Scribner.

Buber, M. (1983). *A land of two peoples: Martin Buber on Jews and Arabs* (P. Mendes-Flohr, Ed.). New York, NY: Oxford University Press.

Buber, M. (2002). *Between man and man* (R. Gregor-Smith, Trans.). New York, NY: Routledge.

Buber, M. (2003). *Two types of faith: A study of interpenetration of Judaism and Christianity* (N. Goldhawk, Trans.). Syracuse, NY: Syracuse University Press.

Kaufman, W. (1983). Buber's failure and his triumph. In Y. Bloch & H. Gordon (Eds.), *Martin Buber and his thought* (pp. 22f). Freiburg im Breisgau, Germany: Herder.

Levinas, E. (1969). *Totality and infinity: An essay on exteriority* (A. Lingis, Trans.). Pittsburgh, PA: Duquesne University Press.

Levinas, E. (1998). *Otherwise than being or beyond essence* (A. Lingis, Trans.). Pittsburgh, PA: Duquesne University Press.

Noddings, N. (1984). *Caring: A feminine approach to ethics and moral education*. Berkeley: University of California Press.

Rosenzweig, F. (2002). *On Jewish learning*. Madison: University of Wisconsin Press.

Scholem, G. (1937). Martin Buber's conception of Judaism. In *On Jews and Judaism in crisis: Selected essays*. New York, NY: Schocken.

Tillich, P. (1948). Martin Buber and Christian thought. *Commentary, 5,* 6.

Tillich, P. (1952). Jewish influences on contemporary Christian theology. *Cross Currents, 2,* 38–42.

Buddhism

See Indian Religious and Philosophical Traditions and Education

C

CAPABILITY APPROACH: MARTHA NUSSBAUM AND AMARTYA SEN

The capability approach (also known as the capabilities approach) is a theoretical and normative framework concerned with well-being, the just design of institutional and social arrangements, poverty, and human development. The approach was originally pioneered within political philosophy and welfare economics by Nobel laureate Amartya Sen and was further developed by the philosopher Martha Nussbaum and, more recently, by many other scholars.

During the past three decades, the capability approach has influenced a wide range of academic research, including philosophical theories of social justice and the domains of social policy and development studies, as well as the work of international agencies, for example, the United Nations Development Programs and Reports. The approach has also increasingly informed studies in education with a particular focus on questions of educational justice, disability and special-educational needs, gender, and access to higher education. The reach of the capability approach is therefore broad and interdisciplinary and covers both theoretical and practical domains of inquiry.

As a theoretical and normative account, rather than a full-fledged theory, the approach provides a conceptual framework for defining the individual's well-being and a normative position on how just social and institutional arrangements *ought to be* designed. More specifically, the approach contends that well-being should be conceptualized in terms of individuals' capabilities to achieve valued functionings and thus to lead the kind of life they value. Functionings consist of all the beings and doings that people have reason to value, or, in other words, they are states and actions that make one's life valuable. Functionings are countless, from simple ones, such as being rested, being happy, or being thirsty, or reading, listening to music, or cooking, to more complex ones, such as being a foster parent, participating in the life of the community, or working as a librarian. Capability refers to the real, effective opportunities that people have to choose among valued functionings; hence, they are the real freedoms to be and to do what one chooses and values. The normative core of the capability approach is that individual well-being, as well as social arrangements and policies, should be evaluated in terms of capability, thus in terms of the effective freedoms and opportunities to choose among valuable kinds of lives.

While capability and functionings are the core concepts of the approach, Sen and Nussbaum have developed different versions of the framework. Whereas Sen has primarily focused attention on questions of justice, freedom, and poverty, Nussbaum has given the approach a universal scope by specifying a list of central human capabilities that, in her view, characterize what makes a life truly human. These differences are worth exploring in more detail.

Sen's Approach

Sen originally devised the capability approach as an innovative account of well-being, both for welfare

assessment and for theories of justice. He proposes the approach as an alternative, on the one hand, to the utilitarian view that defines well-being in terms of utilities, or preference satisfaction, and on the other, to John Rawls's position on justice as fairness, which evaluates individuals' relative advantage by assessing their holdings of social primary goods, that is, resources such as income and wealth. According to Sen, rather than concentrating on subjective states such as satisfaction or on the resources that people have at their disposal, any account of justice should focus on what people can be and can do with their resources to achieve well-being. In his view, well-being lies in the real freedoms, the effective capability that people have to achieve chosen functionings; and, therefore, just institutions should seek to equalize people's capability, or their effective opportunities to lead valuable lives. Sen further specifies some basic capabilities that are essential to well-being, such as being nourished and sheltered, being educated and healthy, and appearing in public without shame.

In Sen's view, the lack of the relevant basic capability determines disadvantage and inequality, and poverty is therefore seen as a failure of capability. Thus, while fasting is a valued and chosen functioning for some and may lead to well-being, starving is the absence of the relevant capability—that is of the relevant freedom to achieve the relevant functioning, in this case being nourished.

In addition to the centrality of capability for justice, Sen also introduces a very important element in the evaluation of individuals' relative positions: the concept of human diversity. Sen maintains that differences such as personal, physical characteristics and climatic and environmental factors, as well as cultural and social elements, should all be accounted for when evaluating relative disadvantage. These constitutive features of human diversity, in Sen's view, lead to a different conversion factor of resources into well-being, and as such, they should be included in the evaluative process. A conversion factor is the degree to which a person can transform a resource into a functioning. These factors can be personal, social, or environmental. For example, to function adequately in her environment, a pregnant woman living in a cold climate will require a different amount of food from the amount required by a nonpregnant woman living in the same environment, other things being equal. Her pregnancy, the environment, and specific policies providing nutritional supplements are factors that affect the extent to which a diet high in nutritional value will contribute to her well-being.

Despite his attention to questions of justice, Sen has not further specified what capabilities should be promoted through the design of social and institutional arrangements. He maintains that any list of specific capabilities must be the result of a democratic process of deliberation involving all the relevant parties, that is, all those who will be affected by the decision. In this sense, Sen's version of the capability approach is intentionally unspecified.

Nussbaum's Approach

Nussbaum's capabilities approach has provided a different, and to some extent more specified, version of the framework. Nussbaum endorses the concept of capability as the variable for comparisons of well-being and freedom, but she identifies a list of 10 central human capabilities, which governments should secure to all individuals up to a certain threshold level of adequacy as a constitutional guarantee. These capabilities include life (including the ability to live a life of normal length); bodily health; bodily integrity (the ability to change locations and to have sovereignty over one's body, including not being vulnerable to assault); the ability to use one's senses, imagination, and thought; emotions, including attachments to things outside ourselves; practical reason (the ability to form and revise a conception of the good and a life plan); affiliation (the ability to form and engage in meaningful relationships); the ability to play; the ability to have concern for other species; and control over one's material and political environment.

The capabilities of practical reason and affiliation are accorded primacy as they support and allow the development and exercise of all the other capabilities. Moreover, Nussbaum specifies her central capabilities as "combined capabilities" that result from the combination of internal capabilities with suitable external conditions for the exercise of functionings. Internal capabilities are developed powers of the person, such as the capability to speak or to form a political opinion. These internal powers can only become functionings when the external conditions are favorable to their enactments. For example, a person may have the capability of forming and expressing an opinion but might be prevented from exercising it by oppressive regimes.

Nussbaum contends that her central human capabilities have a universal dimension. She maintains

that each capability in the list expresses a fundamental aspect of a life lived with the dignity of a human being and, as such, her list can be recognized as essential for well-being by people who otherwise endorse very different conceptions of the good. She further contends that her list can therefore be considered the product of a political process of overlapping consensus. Nussbaum does not provide any further articulation of her claim, but she insists that her list of central capabilities provides the basis for an adequate social minimum that governments have to deliver as a matter of justice to all individuals. In other words, government should secure the achievement of a threshold level of functionings for each capability. In her more recent work, Nussbaum has extended her analysis to questions of justice concerning people with disabilities, justice for nonhuman animals, and global justice. Overall, her version of the capabilities approach, in endorsing a minimum threshold level of capabilities that should be achieved by all human beings, can be considered a partial and minimal account of a theory of social justice.

Criticisms of the Capabilities Approach

The capabilities approach provides a new perspective on questions of well-being, justice, and poverty. However, while the approach has gained increased recognition in academic and policy arenas alike, it is not without its difficulties. Among others, two are worth mentioning. First, the approach is not a full-fledged theory, and as such, many theoretical and normative elements are in need of further specification—for example, the questions of what capabilities should be chosen and, if threshold levels of achievement are identified, what the requirements of justice are beyond them. Second, since the approach is intentionally open, the question about what is needed to develop a full capability theory of justice needs further exploration. Notwithstanding these limitations, the approach advances our understanding of well-being and freedom in significant ways.

Lorella Terzi

See also Phronesis (Practical Reason); Rawls, John; Utilitarianism

Further Readings

Comim, F., Qizilbash, M., & Alkire, S. (2010). *The capability approach: Concepts, measures and applications*. Cambridge, England: Cambridge University Press.

Nussbaum, M. (2000). *Women and human development*. Cambridge, England: Cambridge University Press.

Nussbaum, M. (2011). *Creating capabilities: The human development approach*. Cambridge, England: Cambridge University Press.

Sen, A. (1992). *Inequality reexamined*. Oxford, England: Oxford University Press.

Sen, A. (1999). *Development as freedom*. Oxford, England: Oxford University Press.

Sen, A. (2009). *The idea of justice*. London, England: Allen Lane.

Walker, M., & Unterhalter, E. (2007). *Amartya Sen's capability approach and social justice in education*. Basingstoke, England: Palgrave.

CAPITAL: CULTURAL, SYMBOLIC, AND SOCIAL

Capital is the central concept in the research tradition developed by the French sociologist Pierre Bourdieu (1930–2002) and his collaborators. In the period since this concept was forged during the 1960s, it has become widely used in virtually all branches of the social sciences and humanities. Capital in Bourdieu's sense denotes certain kinds of assets or resources—namely, those that gain social recognition. Take, for example, a PhD degree from an esteemed site of learning. To function as capital, this degree has to be recognized, in both meanings of the word: It has to be recognizable—all concerned have to be able to identify it—and its value needs to be acclaimed. (This is the case with doctoral degrees within the scientific community and in many other contexts in most societies, although this has not been the situation always and everywhere—in China in the days of the Cultural Revolution, for example, such a qualification probably was a handicap!)

Bourdieu differentiated between various species of capital. *Symbolic capital* is the most general concept. Any kind of asset—titles, know-how, material belongings, whatever—functions as symbolic capital if and only if it is ascribed value. This is true also for *economic capital*—made up not only of income, fortune, and material possessions but also of proficiency in mastering the private economy and comprehension of the world of finance; to be a form of capital, these things must be valued. *Cultural capital* is, alongside economic capital, the most powerful and effectual kind of asset at least in societies within the Western sphere of influence. In France

and similar countries, key components of cultural capital are familiarity with high culture and sophisticated skills in speech and writing, capabilities that are predominantly inherited from an upbringing in the upper social classes and also acquired in elite schools. *Social capital* is what makes it possible to profit from family bonds and contacts with friends, acquaintances, or old schoolmates. In addition, there are numerous more specific species of capital: educational capital (measured by, e.g., degrees), scientific capital (repute in the learned world), and so on.

Cultural Capital: The Classical Studies

Among educational theorists, Bourdieu's most well-known concept is probably cultural capital. While the term *cultural capital* was not introduced in Bourdieu's published writings until 1966, the concept was already very important in his first studies on the French educational system during the early 1960s, though at that time it was designated by other words: *cultural heritage*, *social heritage*, *cultural privilege*, and *cultural level*. It was originally used to explain the finding that variations in educational achievement among children from different categories of families could not be traced back solely to differences in economic conditions. Even more decisive in determining a successful trajectory through the education system were other resources in the parental home, especially the parents' educational level, mastery of the French language, and familiarity with the fine arts, together with all the other fine-tuned distinctions in the lifestyle and social conduct of the upper social classes. These kinds of symbolic possessions were labeled cultural capital. In a meritocratic society such as France, cultural capital is to a large extent sanctioned and transmitted by the education system. Therefore, in empirical research, the education achieved by individuals or groups—its character and its length—is frequently used as a rough indicator of the amount of cultural capital at their disposal.

In France, the book titled *The Inheritors* made Bourdieu famous almost overnight when it was published in 1964. Those "inheritors" were university students in the humanities faculty who tried to make themselves heirs of the assets that Bourdieu was later to label "cultural capital." Most of them had been equipped at home with a more or less solid cultural heritage that served as a precondition for smooth adaptation to the demands of the university. Those less well furnished had, with few

exceptions, been already eliminated at lower levels of the school system. Besides selecting and rejecting different categories of the rising generation according to their possession of inherited cultural capital, the education system is also in itself the main site for the reproduction, legitimization, and transfer of cultural capital.

If these observations seem trivial or self-evident today, it is thanks to the seminal investigations by sociologists, especially in the 1960s. At the time, Bourdieu's conception of the educational system was highly controversial; the predominant view was what he described as *l'idéologie du don*—the ideology of the gift and the giftedness, namely, that schools and universities distributed their rewards according to the students' talents, regardless of social characteristics. The book on the inheritors made Bourdieu not only famous but infamous; he has testified that after its publication, former colleagues and teachers stopped greeting him when they met in the street.

Although originally developed to answer questions within the sociology of education, the concept of cultural capital also offered a key to understanding the structure of society as a whole. In contemporary sociology, social differentiation was commonly depicted as a vertical ladder with the rich at the top and the poor at the bottom. In works such as *Distinction* (1979), Bourdieu and his collaborators introduced a multidimensional understanding of the French "social space." Besides the vertical social hierarchy—with "the dominant class" at the summit, "the popular classes" at the base, and "the middle classes" in between—they did research on oppositions that stretched in other directions. Most important was the horizontal polarity separating groups holding more economic than cultural capital from those holding more cultural than economic capital. Thus, the dominating class consists of two main opposing factions: on the one hand, groups with abundant economic assets and economic power—owners and executives of big corporations and the like—and on the other, culture producers—university professors and others whose positions were based mainly on the possession of cultural capital. Two corresponding poles were found within the region of the middle classes: owners of small businesses versus librarians and schoolteachers.

Definitions of Cultural Capital

In the studies of French society, and subsequently in many other countries within the Western realm,

Bourdieu and his followers were able to identify cultural capital as the species of capital that is recognized throughout the entire society, by all social groups. It is especially appreciated among members of the dominating class—where it is also concentrated—but the lower ranks of the social hierarchy are aware of the supremacy of the legitimate cultural capital as well, although they might dislike it and realize that it is not available to them.

Of course, the content of cultural capital varies over time and from society to society. In the classical studies in the 1960s and 1970s by Bourdieu's team in France, it was found to be centered on highbrow culture, proficiency in spoken and written French, and other assets that were sanctioned and transmitted by the most prestigious schools. The content has changed since then. Not even in France does the mastery of Latin and Greek any longer constitute a principal component of cultural capital.

A simple way to trace the content of cultural capital is to ask the following question: "If in spite of limited economic means, you hold some kind of acknowledged position in society, what assets of yours entitle you to that position?" Those assets might be called cultural capital, at least in societies within the Western hemisphere. In very different kinds of societies, the most powerful noneconomic species of capital might instead be political, religious, or military.

An alternative definition is historical. Symbolic capital has existed in all places and at all times, wherever human beings share a perception of certain skills, capacities, or belongings as marks of honor, prestige, reputation—words that Bourdieu used in the late 1960s before he settled on "symbolic capital." With the expansion of writing techniques and the establishment of an education system, a new species of symbolic capital emerged—cultural capital. It was more stable and more transferable across regions of society and across generations since it was no longer necessarily attached to certain individuals or groups but could be objectified, as, for example, in documents, and institutionalized, as in titles and exams.

Social Capital

Individuals and groups do not only possess capital of their own. A wider array of resources is available among their relatives, friends and acquaintances, alumni from their old school, and other personal networks. "Social capital" denotes this repository of potentially available assets ready to be activated when required. If you are rich in social capital, you might be able to receive advice from a nephew working in the banking business when you consider taking a mortgage loan; and when in doubt about what school to choose for your children, you might call a former classmate who has ended up in the National Board of Education.

As in the case of cultural capital, the concept of social capital likewise emerged as a hypothesis to explain the findings in the early studies on education by Bourdieu and his collaborators. Even individuals equipped with similar holdings of inherited cultural and economic capital and comparable school achievements might meet with quite different fates in higher education and professional life. One reason for the success of some and the failure of others seemed to be differences in their social capital. For example, some had access to precious contacts, while others had to settle for the student counseling and employment services.

Social capital in Bourdieu's sense should not be confused with other notions with the same name. "Social capital" as introduced by the North American sociologist Robert Putnam in the 1990s is a different concept; it refers to the societal glue created by the networking of individuals at the grassroots level, which was supposed to foster cohesion, democracy, and economic development—individuals without such networks were said to be "bowling alone."

Fields and Field-Specific Capital

Most of Bourdieu's other key concepts are related to the concept of capital. *Habitus*—systems of dispositions that allow people to act, think, and orient themselves in the social world—might be regarded as a form of embodied or incarnated capital.

Another essential concept is *field*, introduced in a few theoretical texts by Bourdieu around the year 1970 and subsequently used in a steadily increasing number of historical and empirical studies from his research center. If we keep to the so-called productions fields, each of these is defined by its own "field-specific capital." The literary field—explored in *The Rules of Art* (1992)—is the site for the production and endorsement of literary values. The bearers of literary capital are recognized authors, together with critics, editors, and others to whom the field gives the authority to pass judgments on literary quality—and on authors.

In the same manner, the scientific field constitutes its own scientific capital. As shown in *Homo Academicus* (1984), there are also other species of capital at stake in academia, associated with, for example, administrative academic power, the industry's commercial concerns, or the agendas of the mass media or the political field. However, provided that the scientific field is autonomous enough, it controls its own mechanisms for the consecration of the most prestigious research achievements (and researchers), the selection of acceptable new entrants and the rejection of the rest, and the allotment of rewards and penalties—all of this based on the distribution of scientific capital.

The *field of power* is the system of relations between all important species of capital in a society, including the economic, juridical, political, bureaucratic, scientific, and artistic. In *State Nobility* (1989), Bourdieu and Monique de Saint Martin demonstrated that the system of elite education institutions in France did exhibit the same structure as the French field of power.

Controversies

Reoccurring debates on the early works by Bourdieu and his collaborators have addressed the question of to what extent the findings were exclusively French. Even if the concepts and methods have proven to be useful in studies of other societies and other time periods, it would be unwise to assume that the same *results* apply. In most other contexts, for example, the content of cultural capital will probably be different—maybe less marked by highbrow culture, as has often been suggested.

A limitation in the early analyses of the different species of capital and the fields is that the national borders were taken for granted. Therefore, intense efforts have been made to widen the framework to include transnational and global phenomena.

Donald Broady

See also Cultural Literacy and Core Knowledge/Skills; Reproduction Theories

Further Readings

Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste* (R. Nice, Trans.). London, England: Routledge & Kegan Paul. (Original work published 1979)

Bourdieu, P. (1986). The forms of capital (R. Nice, Trans.). In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood Press. (Original work published in German 1983)

Bourdieu, P. (1988). *Homo academicus* (P. Collier, Trans.). Cambridge, England: Polity Press. (Original work published 1984)

Bourdieu, P. (1990). *Reproduction in education, society and culture* (2nd ed.; R. Nice, Trans.). London, England: Sage. (Original work published 1970)

Bourdieu, P. (1996a). *The rules of art: Genesis and structure of the literary field* (S. Emanuel, Trans.). Cambridge, England: Polity Press. (Original work published 1992)

Bourdieu, P. (1996b). *The state nobility: Elite schools in the field of power* (L. C. Clough, Trans.). Stanford, CA: Stanford University Press. (Original work published 1989)

Bourdieu, P., & Passeron, J.-C. (1979). *The inheritors: French students and their relation to culture* (R. Nice, Trans.). Chicago, IL: University of Chicago Press. (Original work published 1964)

Cardinal Principles of Secondary Education

The *Cardinal Principles of Secondary Education* is a 32-page report issued in 1918 by the Commission on the Reorganization of Secondary Education. The National Education Association formed the commission, chaired by Clarence D. Kingsley, amid concerns about demographic changes from immigration, urbanization, and industrialization, which resulted in a rapid increase in high school enrollment. The commission's 28 members represented a range of education professionals. Serving as members at large, for example, were the sitting U.S. commissioner of education, three education professors, a philosopher, the education secretary of the YMCA, the principal of the Chicago Normal School, a university president, a high school principal, and a state high school supervisor. Their work was intended to guide the education of youth during a watershed period in American history. This entry describes the report, its content, and conflicting interpretations of its influence.

The *Cardinal Principles* report is most widely known for organizing the purposes of secondary education around seven broadly defined objectives. These objectives include the following:

1. *Health*, including instruction in health habits, physical activities, and community health interests

2. *Command of fundamental processes*, particularly advanced language and mathematics proficiencies

3. *Worthy home membership*, with a focus on contributions to wholesome family relations as well as family enjoyment of literature, art, and music

4. *Vocation* education to equip individuals with a livelihood that benefits themselves, their families, and society

5. *Civic education* to develop the qualities, habits, and practical knowledge necessary for individuals to function as members of neighborhoods, towns, states, and nations, and necessary to understanding international problems

6. *Worthy use of leisure* to prepare students in culture and the arts for recreation of the body, mind, and spirit, and for personal enrichment

7. *Ethical character* education and modeling of moral codes that promote personal responsibility in the service of democratic life

The *Cardinal Principles* report remains widely studied for at least three reasons: (1) its objectives as a statement of evolving aims for secondary education, (2) the report's democratic focus, and (3) its contributions toward an enduring model for high schools.

The first reason for continuing interest in the *Cardinal Principles* is that it represents a classic statement of what is called "aims talk" in education. Aims talk is associated with philosophical traditions stretching back to Plato's *Republic* and his "myth of the metals." In this allegory, Plato begins by identifying the needs of Athenian society for three distinct classes: rulers, guardians, and artisans. Although education was to serve social needs, Plato also argued that if young Athenians are carefully selected for gold, silver, or bronze training, the individuals would be personally committed and content with fulfilling their social roles. The *Cardinal Principles* report is often credited with helping to bring this tradition of aims talk into the industrial age. Some have argued that aims talk has waned in recent years. Nevertheless, such periods of neglect have punctuated educational history, only to have aims talk rebound as social and technological changes once again push questions of purpose to the forefront of educational concerns.

A second reason for the report's significance is its explicit emphasis on the needs of popular democracy. Here, the *Cardinal Principles* report is often compared with that of the Committee of Ten, a commission also founded by the National Education Association but 25 years prior to the *Cardinal Principles*. The Committee of Ten commission, chaired by Harvard University President Charles W. Eliot, is generally viewed as confirming the value of traditional academic subjects.

The intervening shift by 1918 to a more progressive stance is often attributed to demographic trends. Prior to the 20th century, high schools were attended by very few adolescents and almost exclusively by those with an elite and affluent social standing. Yet school-age populations were beginning to change by the turn of the century. Enrollments increased, and as a result, schools found themselves dealing with a greater diversity of adolescents with a greater range of interests. Moreover, immigration to urban, industrialized areas was also on the rise, together with a perceived need to assimilate those new to American culture.

Today, the intentions and outcomes of this "democratic experiment" are contested. Some educational historians, particularly after 1960, came to view the *Cardinal Principles* as promoting a rapid proliferation of new high school courses that undermined the report's espoused aims of equity. Other historians have interpreted the expansion of course offerings as an attempt to balance the needs of both psychological and social development. On this point, the report speaks directly to the unique worth of individuals and their right to self-determination. It also stresses the importance of relevant and practical knowledge within the scope of its seven objectives.

A third, and related, reason for continued interest in the *Cardinal Principles* report is that it presaged what many regard as a uniquely American invention: that is, the comprehensive high school. Here, the *Cardinal Principles* signaled a turning point away from the elite and often esoteric curriculum of the 19th century. The report authors do not relinquish the aims of college preparation, but their objectives go well beyond academics to include, for example, home membership, leisure, and calls for vocational programs. From its progressive beginnings, the comprehensive high school was soon to become a cornerstone in the nation's "melting pot," and in doing so, this model for secondary education now continues into the 21st century with only minor changes.

David J. Flinders

See also Aims, Concept of; Immigrants, Education of; Progressive Education and Its Critics; Schooling in the United States: Historical Analyses

Further Readings

Commission on the Reorganization of Secondary Education. (1918). *Cardinal principles of secondary education* (Bulletin No. 35). Washington, DC: Government Printing Office, Department of the Interior, Bureau of Education.

Kliebard, H. M. (1995). The *Cardinal Principle* report as archeological deposit. *Curriculum Studies, 3,* 197–208.

Waraga, W. G. (2001). A progressive legacy squandered: The *Cardinal Principles* report reconsidered. *History of Education Quarterly, 41,* 494–519.

CASE STUDIES

Case studies feature prominently in the educational research literature, but what precisely is a case? It is an in-depth, multifaceted examination of something, where the something can be a person, a group, a class or a school, an organization, a community, or even a process (an instructional episode, an election, a policy being formulated). Sometimes, the issue or phenomenon or problem that is the focus or theme of the case is known before the research work begins, but it is also quite common for the precise nature of the study to emerge during actual work on-site.

A case study can be narrowly focused, or it may cast its net widely and include as part of its examination the complex interactions between many facets of the setting in which the research is grounded. Whatever the research question is and whatever the physical setting, the case study is an attempt to paint a complete picture of the pertinent factors and processes, how they interact, and how these might vary as conditions or circumstances change.

It is important to stress that researchers doing a case study are not attempting a major intervention in the situation, setting, or process that is its focus; they are not attempting to implement a treatment or program (e.g., they are not attempting to ascertain, using a randomized experimental design or a quasi-experimental design, whether Treatment X causes Effect Y)—unless, of course, the process of implementation of a treatment or reform is itself the focus of the case. The purpose of a case study, in short, is to understand what is going on in the situation, or with respect to the problem, that is being studied, why this is happening, and how the various aspects of the case relate to each other.

A detailed example will be helpful here. Consider a researcher who is interested in the phenomenon of homophobia in school sports; she might decide to undertake a case study of a particular high school football team, in a specific school, with the aim of achieving an "ecologically valid," deep understanding of the phenomenon—perhaps for its own sake or before carrying out more focused work involving interventions. Clearly, this researcher's first task will be to select the site in which the case will be developed, for not all sites (not all football teams) will be suitable venues for studying the issue that is the focus (the case here being one of "homophobia in school sports"). Thus, the particular team could be selected because it has a coach who is known to discuss equity in all its various forms, or it is a team in a school that has a past history of homophobic acts, or the school district has active policies about equity, or, as happens in many instances, in this site there is a combination of advantageous factors, including accessibility for the researcher.

While working on the case, the researcher might examine district, school, and athletic department policies; the perspectives and backgrounds of the coaches; students' views of their own and fellow students' and coaches' views of homophobic behavior; the school administration's position and monitoring of related issues; and even attitudes toward homosexuality in the broader community that is the context in which the school—and its football team—operates. She also would go further and examine the interactions among coaches and players during practice sessions and games. As a result of her observations, the researcher might be led to examine the impact of homophobic language on gay and straight players and on team cohesiveness and team climate.

As can be seen from this example, case study researchers use a variety of evidence and attempt to approach the central focus of the case from multiple levels and angles. What might not be as apparent is that data collection is only one aspect of the case study. The analysis, and the depth to which it is conducted, is equally important. Merely to report the data that were collected is to remain at the level of description, and powerful case studies go beyond this.

An important methodological feature of most case studies is that the analysis of data is not relegated to the final stages of work but takes place

throughout the course of the study and actually progressively influences the direction the study takes—researchers examine the data and ask "why" the case functions as it does. In the football team example, if homophobic language is used, why is it used? Is it because of the traditions of the sport and the backgrounds of the coaches? Are some coaches uncomfortable with its use but are having concerns about expressing this? What is the impact on the athletes, both gay and straight? How do district policy and administrators' perceptions and explicit and nonexplicit statements relate to how coaches see homophobic language and behavior?

In other words, the progressive analysis of the data in hand raises further questions—the pursuit of which drives understanding of the issues in the case deeper; and ultimately, the reader of the research can be given an in-depth perspective on what occurred, how it occurred, and why it occurred.

Another point needs to be made about the methodology of case studies. Often researchers, and consumers of research, think that case studies exclusively employ qualitative methods. But this is not an accurate perception, for a case study may use qualitative, quantitative, or mixed methods to collect data. To continue with the football team example, the researcher could use only qualitative methods by taking field notes while observing practices, coach and team meetings, and informal interactions while moving from the locker room to the practice field, on the team bus to a game, and during a game. She also may interview coaches, athletes, other students and administrators, as well as fans of the team. In addition, the researcher may collect materials (e.g., district and school policy manuals, fliers that are handed out to students); she could even go further and photograph locker room graffiti and material on bulletin boards throughout the school. All of this material would provide useful information about the case.

However, quantitative methods might also be used in this study. For example, the researcher might use surveys to document homophobic attitudes for each of the players and for the coaches; she might use data from school district and police reports that describe the number and type of homophobic incidents at the school; furthermore, she might use a systematic observation instrument to observe both equitable and homophobic behavior during practices. The qualitative and quantitative data would complement each other and be used during analysis to get more insight into the case.

Case studies can also be exclusively quantitative. For example, a case study of budgeting practices in an urban school district could use multiyear budgets to examine trends and relationships with a number of factors, including student achievement, teacher hiring and retention, and high school graduation rates. An analysis could be conducted of school board and committee meeting minutes to determine their specific focus on budget issues and the time spent on those issues. Surveys could be conducted of parents, teachers, and administrators about the impact of budget decisions. And economic trends could be analyzed to view the district's budget in context. The analysis would use all these types of data to elucidate what occurred and the relationships between the different types of data.

The main limitation or drawback of case studies is related to their greatest strength. Because they focus on gaining an in-depth understanding of a specific problem, issue, or phenomenon in a specific setting, their findings are not generalizable to other settings. The case study informs us about the unit being studied—about, for example, homophobia in *this* team, with *these* students having *these* backgrounds, with *this* coach, and in *this* school and community. It certainly can provide information to inform other research and to serve as background or a starting point for an examination of what is occurring in other, similar settings.

A reader of a particular case study may find the results and analysis helpful in throwing light on his or her own situation, but how helpful it is will ultimately depend on how many points of similarity exist between the situation of the reader and the setting in which the case study was conducted. Nevertheless, while generalizability is not technically possible, readers often get information from case studies that, if used cautiously, can enhance both future research and professional practice.

Stephen Silverman

See also Evaluation of Educational and Social Programs: Models; Experimental and Quasi-Experimental Designs for Research: Campbell and Stanley; Qualitative Versus Quantitative Methods and Beyond

Further Readings

Stake, R. E. (1995). *The art of case study research.* Thousand Oaks, CA: Sage.

Thomas, G. (2011). *How to do your case study: A guide for students and researchers.* Los Angeles, CA: Sage.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Los Angeles, CA: Sage.

Yin, R. K. (2012). *Applications of case study research* (3rd ed.). Los Angeles, CA: Sage.

CASTORIADIS, CORNELIUS

Cornelius Castoriadis (1922–1997) was a Greek philosopher, psychoanalyst, social theorist, and political activist who lived in France most of his life. For a long time, he was best known for his political writings in the group Socialisme ou Barbarie (Socialism or Barbarism), which he founded together with Claude Lefort, but his philosophical work is increasingly being introduced to a range of academic disciplines, such as education. His intellectual inspiration ranges from Karl Marx, Sigmund Freud, and Max Weber to German idealism and the phenomenology of Maurice Merleau-Ponty; but arguably most important was his lasting interest in Aristotle and the ancient Greeks. A key to the increasing interest in Castoriadis is his unique combination of political seriousness and scholarly sophistication, as reflected in his many-faceted, almost encyclopedic work.

Castoriadis saw himself as part of the grand Western tradition, where education and philosophy are two sides of the same coin. He did not write specific texts on education but emphasized its significance in numerous political and social writings, especially those discussing politics and democracy. A central concept in these discussions is the notion of "individual and collective autonomy," which signifies the awareness that societies are self-created and can therefore be re-created in conscious and explicit ways. Democracy, in its original Greek sense, is seen as a regime that facilitates such political creation. However, for democracy to realize its potential as a regime of autonomy, a specific kind of education is required, an education through which the citizens come to see society (or the polis) as their own responsibility.

In ancient Athens—Castoriadis's preferred case for discussing autonomy—the city and the citizens were in fact one and the same phenomenon as covered by the term *athenai*. To become a responsible citizen in this emphatic sense means, for Castoriadis, to become a *subject*. Compared with the social *individual*, who is simply a product of society, a "subject" is a reflexive agent capable of questioning both the world and himself. Thus, while a democratic subject maintains a responsible attitude, he or she does not necessarily accept and defend society as it is—more important for Castoriadis is the capacity to question existing institutions and their grounds, their legitimacy and justification. The great invention of the Greeks was, precisely, to realize that the laws had no other foundation than the commitment of citizens to the pursuit of justice, the quest for truth, and the care for beauty. In the historical case of Athens, philosophy and politics co-emerged in the first manifestation of what he calls the project of autonomy, but this impulse is still more or less active today in modern Western societies.

Citizens in a democracy engage in the political re-creation of society's institutions; but autonomy also implies a realization that the world *in itself* is chaos, meaningless, and that there are no extrasocial foundations for the socially instituted world. Autonomy is a project with no guarantees—with the exception of the limits we set for ourselves. This leads us to another, central concept in the work of Castoriadis—the "imagination," which signifies the (human) capacity to create meaning and significations. According to Castoriadis, the social world is instituted by and through significations that have no foundations outside of themselves; that is, they are self-founding and "imaginary" in a "radical" sense—they are the instituted meanings that hold a society together and are embodied in its institutions. Like autonomy, the imagination has a social and an individual side (the terms he uses are the social historical and the psyche). In his main oeuvre, *The Imaginary Institution of Society* (from 1975), Castoriadis discusses the creative role of the imagination in various regions of thought, such as historiography, ontology, psychoanalysis, the philosophies of time and language, and social theory. Large sections are devoted to the development of the notion of social imaginary significations related to an ontology of the social historical, thus forming a comprehensive alternative to methodological individualism and functionalist thought.

The Imaginary Institution of Society was not translated into English until 1987, and it remains his only monograph. His other publications consist of various collections of essays and talks, some still awaiting translation into English. The most important collections in English are (in chronological order) *Crossroads in the Labyrinth* (1984), *Power, Politics and Autonomy* (1991), *World in Fragments* (1997), and *The Castoriadis Reader* (1997). His seminars on Greek history and thought, *Ce qui fait la Grèce* (2004, 2008, 2011; Volumes 1–3), are also seen as central.

In some of these essays, Castoriadis elaborates the connection between education, subjectivity, politics, and psychoanalysis. As a rule, however, his conceptual discussions were an integral part of broader discussions related to political and moral problems. In the latter part of his life, two such problems emerged that made him concerned about the future of politics, in the emphatic meaning of the term, namely, the impending climate crisis and the inability of contemporary institutions to facilitate political creation. In this situation, education becomes more important than ever, yet its direction remains unclear and the grounds for hope, uncertain.

Castoriadis's work is the subject of growing international interest, and numerous publications are currently emerging in political theory, philosophy, classical history, civilization theory, mathematics, social theory, and many other disciplines. An original and demanding thinker, Castoriadis seems to appeal to students especially. One plausible reason for this is the urgency with which he addresses the themes of his time, such as the ecological crisis and the crises of creation and politics, as he saw them.

Ingerid S. Straume

See also Autonomy; Citizenship and Civic Education; Freud, Sigmund; Marx, Karl; Phenomenology

Further Readings

Adams, S. (2011). *Castoriadis's ontology: Being and creation*. New York, NY: Fordham University Press.
Adams, S. (Ed.). (2013). *Castoriadis: Key concepts*. London, England: Continuum.
Baruchello, G., & Straume, I. (Eds.). (2013). *Creation, rationality and autonomy: Essays on Cornelius Castoriadis*. Malmo, Sweden: NSU Press.
Castoriadis, C. (1998). *The imaginary institutions of society* (K. Blamey, Trans.). Cambridge, MA: MIT Press. (Original work published 1975)
Klooger, J. (2011). *Psyche, society and autonomy*. Leiden, Netherlands: Brill.

Websites

Agora International: http://www.agorainternational.org
Association Castoriadis: http://www.castoriadis.org

Causation

Causation is an everyday notion that we often employ unblinkingly to navigate the contingencies of our lives. We take it for granted that putting your hand in boiling water will cause your skin to blister, alcohol on a scratch will cause the sensation of burning pain, and pressing the brake pedal will cause the car to stop. We also more or less accept that smoking can cause lung cancer, that wanting to return a book can cause a student to walk into the library, and that inadequate preparation will likely cause low exam performance. But does "cause" have the same meaning in all of these cases? The temporal and logical relationships between these events, as well as the nature of the events themselves and their practical implications, seem to vary. Is there anything they have in common? Can their web of resemblances be traced?

This entry introduces some of the ways in which philosophers have attempted to answer these questions. It highlights the ontological and epistemological complexities of the notion of causation and connects them to debates in social and educational research. Finally, it notes the debates around the merits and limitations of causally oriented projects of educational research.

Defining Causation

There are many contexts for everyday and specialized uses of the terms *causation* and *causality*, and of their relations, including not only cause, effect, event, condition, phenomenon, process, and variable but also law, rule, regularities, correlation, probability, as well as determination, explanation, and prediction. Further complexity comes from the diverse metaphysical perspectives on causation, ranging from seeing it as a fundamental feature of the world, to seeing it as reducible to noncausal facts, and even to not seeing it as a feature of the world at all but a category through which we understand it. This diversity has implications for the epistemology of causation, for example, in describing the sources of causal beliefs as direct perception or as inference from experience, or in viewing them as a priori, and in finding ways in which causal relations may be modeled.

The history of philosophy abounds in examples and counterexamples that show how lastingly complicated the task of defining causation is. For example, Aristotle developed a theory of causality and of explanation that distinguished between four causes, only some of which overlap with current uses of the term and which may coincide in time with the effect: (1) material (e.g., the bronze of a statue, the silver of

a saucer); (2) formal (e.g., the triple meter in defining a waltz); (3) efficient (e.g., the father of a child, the adviser of an action, the maker of an artifact); and (4) final, or teleological (e.g., health as the end, or aim, of exercising).

In contrast, for Hume, causation is based on a habit of the mind arising from repeated experience of a regular succession of events, which enables it to establish connections, or associations, between ideas. Causal beliefs are inferred from past experience of customary conjunction between the (antecedent) type of object or event and its regular and contiguous successor. Causal ties, or connections, are not necessarily a priori, nor are they directly observed as such. The sense of necessity accompanying them arises from the experience of constant conjunction; thus, causal statements are tentative predictions that the same succession of events will continue in the future.

Kant responds to Hume by advancing a conception of both causality and necessity as a priori categories of understanding, which are prerequisites for our meaningful experience of the world. Causality is a condition of the possibility of the experience of sequence or succession, and thus of empirical claims about change and stability. The causal principle is thus justified "transcendentally": It is neither purely inductive nor purely deductive and neither purely empirical nor purely rationalistic but what Kant calls a synthetic a priori proposition, which is at the same time substantive and independent of empirical experience.

Theories of Causation

Traditional accounts of causation, such as those noted above, are still the kernel of current debates, including those between pluralist/generic and singular/particularist accounts of causes and effects; fundamentalist and reductivist, or (physical) realist and (mental) attributionist ontologies of causation; deterministic and probabilistic views of causal relations; and analyses of actual and potential causality. Building on and sometimes challenging these accounts, philosophers have refined this conceptual palette to explicate causation in ways that speak to current scientific and technological developments. In these refined accounts, regularity, antecedence, and contiguity still feature heavily; sufficiency and conditionality have also maintained their grip; probability and counterfactuality have taken leaps; agency and process have made intriguing comebacks. There are profound disagreements about the definition of each

of these concepts, about their sometimes conflicted relationships with each other, and about their articulation with the wider notion of causation. What follows is the briefest whistle-stop tour of some of these theoretical proposals; Beebee, Hitchcock, and Menzies's edited collection, which includes chapters on each of these theories, is a good starting point for further exploration. Some of the best-known recent theories of causation attempt to account for it in terms of the following.

Regularity

A wide-ranging group of contemporary theories of causation, influenced by Hume, hold that causation is based on mind-independent regularities rather than on natural powers of necessity (as a metaphysically thicker conception of causality might suggest, such as Harré's ontology of real "causal powers").

Minimal Sufficiency

In tight connection with the regularities account, empiricists such as Mill have argued not only that causes are not fundamental "forces" in the world but also that they are "antecedents" that jointly (and also in the absence of negative contingencies) form a sufficient condition for an effect. Whenever this condition is realized, it will be invariably followed by the same type of consequent. The relationship thus depends on generic regularities, or "covering laws." The notion of covering laws inspired Hempel to develop an influential account of causal explanation, the so-called deductive-nomological model. In this account, a causal explanation consists of a deductive argument from a set of relevant antecedent conditions and lawlike statements to the occurrence of an event. Identifying and describing both antecedents and laws is far from straightforward, however. Mackie proposed an account, occasionally cited by social scientists, that allows for complex regularities and plurality of causes. He describes causation in terms of combinations of factors that are minimally sufficient for bringing about an event but that may not be necessary (as other combinations may also be sufficient). Each factor in these combinations is a "cause" in the sense that it is an "INUS" factor, or an insufficient but nonredundant part of an unnecessary but sufficient condition made up by each of these clusters of factors. For the social sciences, this account faces the difficulty of distinguishing, among the different factors, between a cause and a merely spurious contingency.

Counterfactual Dependence

Counterfactual analyses of causation introduce a notion of possibility to test the relationship between cause and effect as distinct possible events: In Lewis's definition, E causally depends on C because if C were the case, then E would be the case, and if C hadn't occurred, E would not have occurred either (counterfactual). Counterfactual dependence can be deterministic or probabilistic (in the latter case, E would have had a different probability of occurring). Such accounts of causation have been attractive to evaluation researchers, as well as to quasi-experimental research; however, these areas of research have also raised challenges to counterfactual approaches, such as the need to accommodate common and competing causes and alternative causal chains, or the difficulties in accounting for negative causation and for overdetermination of social events.

Probability

Even more attractive for many social researchers has been the account of causation in terms of the probability of effects. In a simple theory, causes increase the (calculable) probability of effects. Thus, as argued by Salmon, sufficient causes become a "limiting case" of probabilistic ones. The logical empiricists of the 1920s and 1930s grappled with mathematical notions of probability, but it is in more recent decades that the design and application (e.g., in artificial intelligence) of mathematical techniques for calculating probabilities and modeling causal relationships (e.g., Bayesian causal nets) fully took off. Showing probabilistic dependency does not, however, always amount to a full causal explanation. Some dependencies can be accidental; social and educational research is full of correlations that cannot be interpreted causally, although they may indicate probabilistic dependency. Sea levels and higher education enrollment may have grown over the past century, but if they happen to be correlated, the correlation would be of little help in constructing a causal explanation of either of the two.

Process

Descriptions of causation in terms of relations between discrete contiguous events can quickly run into problems—not the least with regard to carving space and time into sequences of sufficiently narrow or wide causes and effects. Salmon and others proposed to address this issue by focusing instead on the interactions between continuous processes. This proposal may accommodate some important features of, in particular, physical causation; however, for the social scientist, questions of negative causation, historical causation, or mental causation continue to loom large.

Intervention

Manipulation of variables is key to (human) agency- and (human or nonhuman) intervention-based approaches to causation. The basic idea that manipulating a variable (cause) may lead to a change in the value of another (effect) underpins experimental and quasi-experimental research. Early agency-based theories of causation were criticized for their anthropocentrism, but as noted by Woodward, more recent versions of intervention theories have been refined to allow for nonhuman intervention, for combinations of interventions, as well as for multiple and contributing causes.

This conceptual diversity, together with its unresolved tensions, is echoed in the ways in which education and other social researchers state their aims, frame their inquiries, and stake their claims.

Challenges for Education Research

Questions about the nature of causation might not always occur to us in the relentless flow of everyday life, but they matter deeply when people attempt to build descriptions and explanations, draw inferences, and make predictions. Research, including social and educational research, is a systematic way of attempting these tasks, and thus it grapples with issues of causation at all its stages—including asking research questions, analyzing research data, interpreting research results, and critically assessing competing claims from research. For example, Morrison discusses 10 possible ways of framing and answering the question "Why do East Asian students perform better than their Western counterparts in international studies of educational achievement despite discredited pedagogical practices of rote memorization and drill?" Rival explanations of the differential in performance have been developed within particular bodies of literature, which have operationalized the question in their own ways and some of which have produced causal claims seen as contestable by other traditions. Further testing of these tentative explanations and working out of their implications for action may be limited by practical and ethical considerations, which often make it more

feasible to plan for a correlation study (yielding a set of stronger or weaker regularities that may or may not be accepted as evidence of causal relations) than for a study attempting manipulation of causal variables, which would try more directly to focus on the relationship between purported causes and effects. Recent pressures on educational research to demonstrate "what works," for whom, and in what circumstances have led to more emphasis on experimental designs, and in particular on randomized controlled trials, which test the effectiveness and efficacy of an intervention by comparing treatment and control groups of randomly allocated participants.

Despite this interest, there is extensive debate about the grounds for causal claims in the social sciences, including educational research. Three decades ago, Lincoln and Guba went so far as proclaiming causality a "placeholder" theory akin to those about ether and phlogiston, and equally useless in research. Common objections to the possibility of causal explanations in the social sciences refer to difficulties in testing causal claims; it is argued that, as perfect isolation of social phenomena or variables is not possible, the ceteris paribus (other things being equal) condition for claiming causality from experimental manipulation cannot be achieved. It is argued that this limitation, coupled with difficulties in establishing causal chains among phenomena that are aggregate in character, undermines the epistemic status of causal generalizations in the social sciences. Probabilistic explanations seem more common in the social sciences than deterministic ones, and even in the case of the latter, the apparent causal overdetermination of any social event makes causal claims laborious to produce and complicated to define and qualify. There are also limits to the capability of statistical techniques to model causal relations and to distinguish them from, for example, relations of supervenience or covariance—which may show that relationships exist, without explaining why.

In addition, both the phenomena researched and the tools and perspective of the researcher are infused with various social meanings; as a result, some social scientists have stated the aims of their inquiry in terms of understanding, or *verstehen*, and critique and have distanced them explicitly from (causally) explanatory aims. In so doing, they may reject arguments, such as Davidson's, that reasons (as combinations of attitudes and beliefs) are causes for action, and thus that explanations in terms of reasons are a subspecies of causal explanation; instead, they may argue that illuminating and interpreting human action, if at all directed at explaining it, would lead to descriptive or teleological, rather than causal, explanations.

Furthermore, critiques are framed in terms of the dynamics of scientific development: While deterministic and nomothetic conceptions of science may make intervention research and the testing of causal hypotheses the "gold standard" or pinnacle of good research, naturalist and poststructuralist conceptions of science are suffused with heightened awareness of the relations of power and control that may underpin public and political interest in research leading to causal explanations and predictions.

Alis E. Oancea

See also Aristotle; Evidence-Based Policy and Practice; Experimental and Quasi-Experimental Designs for Research: Campbell and Stanley; Kant, Immanuel; Philosophical Issues in Educational Research: An Overview; Probability and Significance Testing; Qualitative Versus Quantitative Methods and Beyond

Further Readings

Aristotle. (1992). *Physics II* (2nd ed.; W. Charlton, Ed. & Trans.). Oxford, England: Clarendon Press.

Beebee, H., Hitchcock, C., & Menzies, M. (Eds.). (2012). *The Oxford handbook of causation.* Oxford, England: Oxford University Press. (Original work published 2009)

Davidson, D. (1963). Actions, reasons, and causes. *Journal of Philosophy, 60*(23), 685–700.

Harré, R. (1975). *Causal powers.* Oxford, England: Oxford University Press.

Hempel, C. G. (1965). *Aspects of scientific explanation and other essays in the philosophy of science.* New York, NY: Free Press.

Hume, D. (2000). *A treatise of human nature* (D. F. Norton & M. J. Norton, Eds.). Oxford, England: Oxford University Press. (Original work published 1739–1740)

Kant, I. (1997). *Critique of pure reason* (P. Guyer & A. W. Wood, Eds. & Trans.). Cambridge, England: Cambridge University Press. (Original work published 1781)

Lewis, D. (2005). *Counterfactuals.* Oxford, England: Blackwell. (Original work published 1973)

Lincoln, Y. S., & Guba, E. G. (1985). Is causality a viable concept? In *Naturalistic inquiry* (pp. 129–159). Beverly Hills, CA: Sage.

Mackie, J. L. (1974). *The cement of the universe: A study of causation.* Oxford, England: Clarendon Press.

Mill, J. S. (1846). *A system of logic.* New York, NY: Harper.

Morrison, K. (2009). *Causation in educational research.* London, England: Routledge.

Salmon, W. C. (1998). *Causality and explanation*. Oxford, England: Oxford University Press.

Von Wright, G. H. (2004). *Explanation and understanding*. Ithaca, NY: Cornell University Press. (Original work published 1971)

Woodward, J. (2005). *Making things happen: A theory of causal explanation*. Oxford, England: Oxford University Press.

CAVELL, STANLEY

The contribution of Stanley Cavell (1926–) to thinking about education is not to be found in any curriculum reform, or in the promotion of any philosophical position, or in the delineation of any theory. Hence, it is not surprising if his name is less familiar among educationalists than that of, say, John Dewey, Jean-François Lyotard, or Michel Foucault. Yet it would be no exaggeration to say that education is Cavell's abiding theme. Hilary Putnam has called Cavell one of the most creative thinkers today and "the only living American transcendentalist" (conversation with Putnam, March 2012). Indeed, Cavell takes up themes that are there in Ralph Waldo Emerson and Henry David Thoreau—centering on the idea of moral perfectionism—as well as building on insights into teaching and learning that pervade the writings of Wittgenstein (these three, in addition to J. L. Austin, being the most powerful influences on his work). Extending the boundary of traditional philosophy to literature, art, and film and opera studies, he returns philosophy to the world of the ordinary.

A philosophical entry point into his work is provided by the topic of skepticism. Epistemologists since the time of René Descartes have addressed the questions of how there can be knowledge of an external world or knowledge of other minds, and it has widely been taken that Wittgenstein's *Philosophical Investigations* provides a refutation of such doubt. It is not that Cavell wishes exactly to deny this, but he does take the view that this is to miss the book's point. That point is rather to express the existential truth in skepticism: Skepticism in epistemology is to be seen, then, as a manifestation within philosophy of a more general disturbance in human life—the human tendency to call into question its own condition (Cavell, 1969, 1979). The philosopher's skepticism needs to be seen, on this account, as related to the kind of doubt that bedevils a Shakespearean hero, such as Othello (How can he know that Desdemona has not been unfaithful?) or

Leontes in *The Winter's Tale* (How can I know that this is my son?) (Cavell, 1987, 1988). It is a short step from here to the multiple ways in which we doubt, to our cost, what we ordinarily know—as, for example, where the experienced teacher's folk psychological knowledge is disparaged in favor of expert opinions or where, in the absence of the testing of behavioral outcomes, learning is assumed not to have taken place.

This Wittgensteinian suspicion of theory's tendency to part company with the rough ground of reality is evident also in Cavell's repeated turn to the ordinary conditions of human life. In *The Senses of Walden* (1972), he shows how Thoreau's "economy of living" serves to challenge prevailing conceptions of accountability—including the ways we account for ourselves, which is to say, both the way we justify the way we live and also the kinds of narratives through which we conceive of ourselves. Cavell shows how Emerson's preoccupation with the common calls into question what it is that human beings in fact have in common, revealing this not in terms of some set of developmental characteristics but rather in terms of a virtuous aspiration: the aspiration to find common ground with others while acknowledging the uncommon. This is perfectionist, not in the fantasy that a perfect world is realizable but insofar as the human being is, as it were, always charged with the responsibility to improve the hour (in Emerson's phrase). This should prompt us to not only react with shame at what is wrong with our societies and our lives but also address this with hope and action committed to a better future.

Sometimes, Cavell's text is perceived to be overly preoccupied with language, even to be engaged in so-called linguisticism, but in fact, his philosophical commitments regarding language have essential social and political implications. Cavell (1984) says that the transcendentalism of Emerson and Thoreau underwrites ordinary language philosophy. He rejects the common understanding of Emerson and Thoreau as belonging to the American *literary* heritage—on the grounds that this silences their philosophical import. They are, like Dewey, committed to "democracy as a way of life."

Like Dewey, and Emerson and Thoreau before him, it certainly makes sense to see Cavell as a distinctively *American* philosopher. For him, as for them, the idea of America, its original promise and its betrayal of that promise, is never far away. But this is by no means to conceive of America in exclusive terms or to see it as a fixed identity: America

understood in perfectionist terms is still to be discovered. This is a thought always open to intercultural horizons.

Cavell's antifoundationalist, Emersonian perfectionism contrasts with Dewey's pragmatism in its greater sense of the provisionality and precariousness of the steps we take. Beyond anything offered in the exchange of communication, language itself trembles. Even a brief encounter with the texts of Dewey and Emerson already reveals a stylistic difference: Dewey's steady, sometimes monotone, homeostatic prose (encouraging balance between two extremes) contrasts with Emerson's capacity to wrong-foot the reader, arousing her from any merely passive absorption of the text, compelling her to think, and compelling her to *read*; this, in Thoreau's (1854/1992) phrase, is "reading in a high sense." Cavell is Emerson's equal in this respect. And here, in reading itself, there is a signal lesson for education, regarding the effects of the texts that are presented to students and what they are expected to gain from them. There is a lesson concerning what education can be. Thoreau subverts the idea of the "common school," which might figure as offering a kind of consolidated socialization, by claiming that what we need is rather the "uncommon school," a place to encounter strangeness in the common, the familiar. Our education will, otherwise, be "sadly neglected" (Thoreau, 1854/1992).

The subtitle of Cavell's *Cities of Words: Pedagogical Letters on a Register of the Moral Life* (2004) effectively expresses the educational intentions of so much of his work, and the book has innovative intercalation of the chapters on great philosophers with the chapters on great films. This reaffirms Cavell's (1881, 1996) faith in the educational value of cinema. Indeed, it is to the films that he saw as he was growing up that he attributes a major part of his own education. These are typically Hollywood "talkies," which means, of course, that they foreground conversation. Their central character, usually a woman, is trying to find her own voice, retrieving it from its suppression, typically by a man. The themes and tone of Emersonian moral perfectionism are worked out in Cavell's depiction of the endless perfecting of the central characters and the other through mutual education. Education is seen to be inseparable from the finding of one's voice. Yet this is something other than what one finds in contemporary affirmations of "student voice." Drawing its significance from the recognition within philosophy of the particular importance of first-person utterance (in Soren Kierkegaard, Ludwig Wittgenstein, and, crucially, ordinary-language philosophy), and from the sense that I must stand behind or be present in my words, the nature of the emphasis on voice is exemplified in *A Pitch of Philosophy: Autobiographical Exercises* (1994) and the substantial memoir, *Little Did I Know* (2010). Indeed, reclaiming the voice in philosophy, against its systematic suppression by the foregrounding of impersonal third-person utterance, is one of his central tasks in philosophy, and this provides the impetus to the adoption of the motif of philosophy as autobiography. Philosophy understood this way is less a set of problems to be solved once and for all than an obligation to be addressed continually, day by day. Without this, our words go dead on us, and the responsibility we bear for this is not only personal but also political.

This begins to reveal the ways in which Cavell's sense of the common and the communal cuts across familiar dichotomies of liberalism and communitarianism. The impulse here is something other than a political developmentalism or politics of recognition, expressed as "mutual respect," "understanding via communication," or "learning from difference." Cavell (1990) says that there is no society before individuation; and self-reliance and the orientation toward the other coexist as a paradox, the very condition of human being. Cavell is drawn recurrently to a vocabulary of sin and redemption. This is not likely to be understood within familiar ideals of autonomy or care ethics. For similar reasons, it is important to emphasize that his work disrupts dichotomies of subject and object, or inner and outer, the hardening of which causes so much confusion in research in education.

Emersonian perfectionism too is there in conversation with others, perhaps with the friend who does not passively nod in agreement or bring consolation but who confronts us with our own shame (i.e., the degraded state of our democracy), challenging us continually to the next, best possibility of ourselves. Conversation with "this another of myself" is crucial to the recovery of political emotion, the release from cynicism. Can we expose ourselves to this ongoing education? This is why philosophy, as Cavell conceives it, is in the end no less than the "education of grown-ups" (see Saito & Standish, 2012).

Naoko Saito and Paul Standish

See also Aristotle; Communitarianism; Dewey, John; Emerson, Ralph Waldo; Liberalism; Rawls, John; Virtue Ethics; Wittgenstein, Ludwig

Further Readings

Cavell, S. (1969). *Must we mean what we say? A book of essays.* Cambridge, England: Cambridge University Press.

Cavell, S. (1972). *The senses of Walden.* New York, NY: Viking Press. (Expanded edition 1981 by North Point Press/1992 by University of Chicago Press)

Cavell, S. (1979). *The claim of reason: Wittgenstein, skepticism, morality, and tragedy.* Oxford, England: Oxford University Press.

Cavell, S. (1981). *The pursuit of happiness: The Hollywood comedy of remarriage.* Cambridge, MA: Harvard University Press.

Cavell, S. (1984). *Themes out of school: Effects and causes.* Chicago, IL: University of Chicago Press.

Cavell, S. (1987). *Disowning knowledge: In six plays of Shakespeare.* Cambridge, England: Cambridge University Press.

Cavell, S. (1988). *In quest of the ordinary: Lines of skepticism and romanticism.* Chicago, IL: University of Chicago Press.

Cavell, S. (1990). *Conditions handsome and unhandsome: The constitution of Emersonian perfectionism.* Chicago, IL: University of Chicago Press.

Cavell, S. (1994). *A pitch of philosophy: Autobiographical exercises.* Cambridge, MA: Harvard University Press.

Cavell, S. (1996). *Contesting tears: The Hollywood melodrama of the unknown woman.* Chicago, IL: University of Chicago Press.

Cavell, S. (2004). *Cities of words: Pedagogical letters on a register of the moral life.* Cambridge, MA: Belknap Press of Harvard University Press.

Cavell, S. (2010). *Little did I know: Excerpts from memory.* Cambridge, MA: Belknap Press of Harvard University Press.

Putnam, H. (2006). Philosophy as the education of grownups: Stanley Cavell and skepticism. In A. Crary & S. Shieh (Eds.), *Reading Cavell* (pp. 119–130). Abington, England: Routledge. (Revised and reprinted in *Philosophy in an age of science*, pp. 552–564, by H. Putnam, 2012, Cambridge, MA: Harvard University Press.)

Saito, N. (2005). *The gleam of light.* New York, NY: Fordham University Press.

Saito, N., & Standish, P. (Eds.). (2012). *Stanley Cavell and the education of grownups.* New York, NY: Fordham University Press.

Standish, P. (2012). Stanley Cavell in conversation with Paul Standish. *Journal of Philosophy of Education, 46*(2), 155–176.

Standish, P., & Saito, N. (in press). *Democracy and education from Dewey to Cavell.* Oxford, England: Wiley-Blackwell.

Thoreau, H. D. (1992). Walden. In W. Rossi (Ed.), *Walden and resistance to civil government.* New York, NY: W. W. Norton. (Original work published 1854)

CENTURY OF THE CHILD, THE: ELLEN KEY

Ellen Key (1849–1926) figures among the few internationally known Swedish educators; but her texts, penned in a spirited and often provocative style, also deal with political issues such as feminism, marriage, religion, and politics. She is best known for her book on education, *Barnets århundrade,* which was translated into English as *The Century of the Child.*

She was educated in the family mansion itself, being submitted to a rigid educational atmosphere. Her mother, an aristocrat, taught her mathematics and grammar, while her nursemaids taught her foreign languages. When her father, the founder of the Swedish Agrarian Party, was elected to Parliament, the family moved to Stockholm. Here, Ellen Key finished her education in a private school, but she acquired a great deal of knowledge as an autodidact. From 1874 onward, she regularly published articles in several newspapers, before beginning to work as a teacher in 1880, most notably at the Worker's Institute of Stockholm. After 1903, she made a living by publishing her texts.

Inspired by various of her acquaintances who had a political, feminist, or scientific background, Key soon broke with the ideas of her milieu: She abandoned liberalism for socialism and abdicated the Christian faith to embrace a scientifically oriented moral system inspired by Charles Darwin and Herbert Spencer. A constant tension is clearly perceivable in her texts: How can the liberty of individuals be reconciled with the welfare of the community? What kind of society needs to be promoted in order to ensure women's equality while at the same time providing the best conditions possible to enable them to fulfill their roles as mothers and educators?

Her writings bear testimony to her remarkable ability to synthesize the intellectual debates of her time in a very personal vision. Hence, the ideas on education, women, and school brought forth in *The Century of the Child* are not completely new—the

originality, for example, consists in how she balances her appeal in favor of children with the fight against the degeneration of the human race.

The first chapter of the book invites its readers to abandon the "Christian concept of life," with its vision of a fallen human nature and its contempt for sexuality. Key calls for the suppression of religious instruction, which she judges to be antiscientific, hostile to individual progress, and abetting hypocrisy. Instead, she adopts a scientifically oriented morality and worldview that make her more optimistic of improving humanity. Rejecting authoritarian state measures (e.g., compulsory sterilization or prohibition of marriage), she asks for a positive eugenics that incorporates a sense of responsibility regarding sex and procreation, and she has confidence in the possibilities of producing a superior type of human by improving living conditions and reforming education. According to Key, the "future race" would not only be more capable but also happier. For a child's optimal development, the parents' reciprocal love matters as much as the child's own health. Thus, the search for individual happiness is reconciled with the future common welfare.

Her eugenic vision leads her to argue in favor of more differentiated gender roles. The women's primary task lay with the children's care and education, thereby making it unacceptable for women to work in factories as this would lead to child neglect and degeneration. The author draws a sinister picture of the social and sanitary consequences of woman-and-child industrial labor. She accuses feminists, with their strong focus on the economic independence of women, of egoism; the limits of female liberty are set by the potential development of every child. Being in favor of protective labor laws, in her later texts, she demands stronger support for mothers via a maternal salary.

Key, in her educational advice, absorbs ideas from Jean-Jacques Rousseau, Johann Wolfgang von Goethe, and Herbert Spencer. According to Key, the tasks of educators include accompanying children during their experiences, caring for their environment, refraining from constantly correcting them, and promoting their individuality instead of imposing stereotypes. From her evolutionist point of view, individual variability proves crucial to the "progress of the race." An educator must stimulate the child's will to leave the beaten track, provided it does not violate the rights of others. It is important to create an atmosphere of harmony and respect within the family, where parents are partners, brothers and sisters are treated as equals, and children participate from an early age in household chores. Key vehemently opposed castigation, something she associated with a lower degree of civilization; beatings signal the parent's lack of intelligence and patience and aggravate the child's hatred and anguish, while hurting his or her dignity and sense of justice and thus leading to later brutal behavior. Intelligent punishment consists in inviting children to control themselves in the face of the fundamental rules of social life. Therefore, it is a lot more effective to explain to crying children that their crying is unbearable to others than to cane them.

Key ranked among the contemporary critics of the school system, pointing to brainwashing, passive pupils, overloaded schedules—so much inadequateness killing off any appetite to learn, any gift of observation, reflection, or imagination. Key's book concludes with a utopian vision of tomorrow's school. She opposes nursery schools (kindergarten), which "free children from their natural individual obligations and put in their place demands that can only be fulfilled *en* masse" (Key, 1909, p. 244); on the contrary, the home should allow children to learn to be free, to provide mutual help, and also teach them the authenticity of human relations. Only at the age of nine should the child attend a completely reconditioned school where there would be individual teaching and free choice of subjects and activities. At the age of 15, specialized schools would prepare students for specific activities, thus encouraging diversity in talent and individuality.

Published in 1900, *Barnets århundrade* was quickly translated into German (1903), French (1908), and English (1909). Her ideas were widely discussed in German-speaking countries and influenced the child study movement in the United States, which emphasized the importance of observing children to intervene appropriately in their education. Her criticism of the school system joins her with the founders of the New School (John Dewey, Adolphe Ferrière, and Ovide Decroly), promoting active methods and an individualistic education. However, Key's rejection of nursery schools had no impact on contemporary educators (Friedrich Froebel and Maria Montessori). Her maternalism firmly opposed Key to the feminism of the American Charlotte Perkins Gilman, who strongly objected to the idea of women specializing in being mothers. But Key joined other feminists, such as the German Hélène Stöcker, in their will to shake off the yoke of bourgeois sexual morality and to financially assist

mothers to ensure their economic independence and social acknowledgment. Her maternalism also earned her a certain disdain in the history of feminism. Recent works by scholars such as Ann Taylor Allen suggest revising this historiography. Key's legacy, like that of other maternalist feminists, consisted in liberating women from the legal yoke and the traditional ethic of sacrifice.

Anne-Françoise Praz

See also Childhood, Concept of; Dewey, John; Pestalozzi, Johann H.; Progressive Education and Its Critics; Rousseau, Jean-Jacques; Spencer, Herbert

Further Readings

Allen, A. T. (1985). Mothers of the new generation: Adele Schreiber, Helene Stöcker, and the evolution of German idea of motherhood, 1900–1914. *Journal of Women in Culture and Society, 10*(31), 418–438.

Allen, A. T. (2005). *Feminisms and motherhood in Western Europe, 1890–1970: The maternal dilemma*. New York, NY: Palgrave Macmillan.

Hofstetter, R., & Schneuwly, B. (Eds.). (2010). *Passion, fusion, tension: New education and educational sciences, end 19th–middle 20th century*. Bern, Switzerland: Peter Lang.

Key, E. (1909). *The century of the child*. New York, NY: Knickerbocker Press.

Kinnunen, T. (2011). Debating individualism and altruism: Gertrud Bäumer, Ellen Key and the ethical foundations of modern life. *Women's History Review, 20*(4), 497–507.

Lengborn, T. (1993). Ellen Key. *International Bureau of Education, 23*(3/4), 835–837.

Register, C. (1982). Motherhood at centre: Ellen Key's social vision. *Women's Studies International Forum, 5*(6), 599–610.

CHARACTER DEVELOPMENT

Views of character development are shaped to some extent by the view that is held of the nature of human beings. If one considers humans to have a split self, as marked, for example, by the dichotomy between reason and desire or emotion, then character development is viewed as enhancing the capacities of reason to control the wayward passions, as Plato held. Some have the view that punishing unruly emotions and training reasoning with rules and willpower is the route to good character. But these

are misleading beliefs; harsh approaches are more likely to mar character than form it. Although it is true that self-control is necessary for the ethical life, well-constructed emotions are actually foundational for adaptive responses. Under normal (optimal) conditions for development, there is no bifurcation in the self. When there is a bifurcation, it is a sign of pathology and impaired sociality, and it is a source of poor social decision making.

Emotions are evolved systems that codevelop with cognition in early life and (in evolutionary terms) increase human adaptation. But emotions must be thoughtfully cultivated, particularly at the beginning of life—humans are dynamic systems whose early beginnings have great import for later functioning, including ethical functioning. From the beginning of life, the child is ready for reciprocal companionship with the mother and other caregivers. The infant coconstructs a social world in which ideally she is practicing intersubjectivity and synchronous interaction and learning how to communicate emotions and thoughts in truthful ways and how to repair communication when it breaks down. These experiences build brain systems that underlie attachment and social skills, both of which facilitate ethical functioning later. A well-built human being has brain functions that have been shaped well by early experience, when the brain is most malleable and establishes homeostasis and thresholds for most body–brain systems.

We know much more from developmental science about the impact of early experience on character development (e.g., how cooperative, agreeable, and conscientious one is). As Kochanska (2002) has noted, warm, mutually responsive caregiving facilitates the development of attachment, self-regulation, empathy, and conscience in childhood, predicting prosocial behavior. But what other early experiences facilitate ethical character development?

Intensive parenting practices existed among the social animals that emerged more than 30 million years ago. Human evolution intensified parenting further, due to the relatively great immaturity of the human newborn. The evolved developmental niche (EDN) was a matchup between early caregiving practices and the maturational schedule of the needy infant (born at full-term with the brain at only 25% of an adult brain); parenting practices include things such as extensive breast-feeding, nearly constant touch, free play, social support, verbal interaction, and responsiveness to the cues of the child. Parenting that includes caregiving that matches up with infant

development encourages the development of healthy systems (e.g., genes that control anxiety are turned on; stress response systems work properly and do not become hyperactive; the vagus nerve, which underlies multiple physiological systems including social interaction, develops well). Each of the aforementioned practices has been linked to early moral development in young children (e.g., self-regulation, empathy, and conscience).

Moral Development

Early life care that matches the EDN ensures that cognition and emotion are well established and integrated. If this does not occur, the individual may have well-functioning analytical skills but diminished emotional and social capacities; or the individual may display poor thought processes and disordered emotions that mislead in action and decision making, harming self and others. In either case, the result can be a lack of coherence between emotion and cognition and/or deficient practical and ethical wisdom.

It is well known that prior actions narrow current choices. This is especially true in the case of care for young babies, who do not have the autonomy to make their own choices and design their own care and development and are thus at the mercy of the decisions made by their caregivers. Thus, denying babies the EDN can have long-term psycho-bio-social effects that influence subsequent ethical capacities; children who fail to develop secure attachment are more aggressive and less socially skilled, and those who display callousness and a lack of self-regulation are on a trajectory toward antisocial personality in adulthood.

Although some contend that ethical traits can be separated from other traits, or that character traits consistently adhere to a person across diverse situations, empirically it has been found that humans display varying ethical responses according to their degree of experience with a particular type of situation. Typically, the consistency in ethical response adheres to situations in a person-by-context interaction (e.g., Maria is always kind in family situations but cruel in work situations, and for Draco, the pattern is opposite).

Furthermore, although there has been much ado about a genetic cause for antisocial character, at present, there are no known genes that fully determine this. For example, the gene that regulates levels of monoamine oxidase A plays a role in development by altering the levels of serotonin and norepinephrine, decreasing the development of inhibitory control and increasing fear memory, which then leads to increased violence. Many people carry a variant of this gene that is linked to violence, but—crucially—they become violent as adults only if other environmental factors were present in childhood (e.g., abuse, neglect). Thus, experience, especially in early life, may play a codetermining role.

Humans have the potential for self-development throughout life. After childhood, the individual selects experiences and environments that influence how and what virtues develop. What one practices with attention and immersion molds desire and habitual response. To develop a virtuous character, as Aristotle pointed out, one needs extensive practice under the guidance of mentors until one is able to make virtuous choices about activities and friendships. In early life, mentors are one's parents and family. Thereafter, they include teachers and neighbors and opportunities for community involvement where ethical skills are fostered and practiced.

In modern societies, where both parents are working, many opportunities for ethical mentorship arise in schooling experiences. Ethical character is more likely to be fostered by classrooms and schools with particular characteristics including caring relationships between teachers and students, positive supportive climates that convey high expectations, opportunities for guided social skill development, and the practice of ethical action in the larger community.

What capacities needed for ethical behavior can be fostered in school settings? James Rest identified four psychologically driven components of ethical behavior, all of which are required for successful completion of an ethical action. Ethical sensitivity involves capacities for perception, imagination of possibility, and interpretation of ethically relevant events. Ethical judgment involves judging which action is the most ethical in the circumstance based on reasoning skills and code application. Ethical motivation or focus means that the individual prioritizes the ethical action over other interests and goals at the time and, with an ethical identity, does so routinely. Ethical implementation requires knowing what steps to take and persevering through obstacles until the ethical action is completed. There are multiple skills that underlie these processes that students can practice and hone toward expertise. A novice-to-expert pedagogy guided by a mentor (a) immerses students in examples and

opportunities to understand the skill in action, (b) offers chances to practice skills in multiple ways, (c) guides students in practicing real-life problem solving applying the skills, and (d) integrates procedures and skills across multiple contexts.

Character development continues across adulthood, promoted by continued brain maturation. In early adulthood, the prefrontal cortex reaches its pinnacle, enabling greater empathy and foresight, facilitating executive functions that are needed for further self-development. Brains continue to mature into middle age, leading to greater synthesizing capacities, insight, and wisdom.

Adults with a virtuous character exhibit a commitment to ongoing self-development. They use moral imagination to take multiple perspectives and foresee consequences. They coordinate multiple factors in moral deliberation, such as intuitions and principles. They demonstrate habituated moral concern and capacities for moral dialogue about collective interests and the regulation of moral institutions. They also have a sense of responsibility for living a sustainable life that takes into account the natural world and future generations.

Darcia Narvaez

See also Adolescent Development; Aristotle; Moral Development: Lawrence Kohlberg and Carol Gilligan; Moral Education

Further Readings

Kochanska, G. (2002). Mutually responsive orientation between mothers and their young children: A context for the early development of conscience. *Current Directions in Psychological Science, 11*(6), 191–195.

Lapsley, D., & Yeager, D. (2013). Moral-character education. In I. Weiner (Series Ed.) & W. Reynolds & G. Miller (Vol. Eds.), *Handbook of psychology: Vol. 7. Educational psychology* (pp. 289–348). New York, NY: Wiley.

Narvaez, D. (2010). Moral complexity: The fatal attraction of truthiness and the importance of mature ethical functioning. *Perspectives on Psychological Science, 5*(2), 163–181.

Narvaez, D., & Lapsley, D. K. (Eds.). (2009). *Personality, identity, and character: Explorations in moral psychology.* New York, NY: Cambridge University Press.

Narvaez, D., Panksepp, J., Schore, A., & Gleason, T. (Eds.). (2013). *Evolution, early experience and human development: From research to practice and policy.* New York, NY: Oxford University Press.

Narvaez, D., & Rest, J. (1995). The four components of acting morally. In W. Kurtines & J. Gewirtz (Eds.), *Moral behavior and moral development: An introduction* (pp. 385–400). New York, NY: McGraw-Hill.

Nucci, L. P., & Narvaez, D. (Eds.). (2008). *Handbook of moral and character education.* New York, NY: Routledge.

CHARTER SCHOOLS

Charter schools in the United States (and some other countries—see below) seek to reform public education through a blend of elements found in public schools (universal access and public funding) and elements often associated with private schools (choice, autonomy, and flexibility). While the definition of charter schools varies somewhat by state, essentially they are nonsectarian public schools of choice that are free from many regulations that apply to traditional public schools. Over the past two decades, charter schools have remained one of the most widely discussed and debated topics when it comes to U.S. school reform. This entry discusses the policy objectives and theoretical arguments for charter schools, research on how they have performed in relation to their objectives, and the challenges and obstacles facing charter schools.

The "charter" agreement establishing each charter school is a performance contract that details, among other things, the school's mission, program, goals, and means of measuring success. Charters are usually granted for three to five years by an authorizer or sponsor (typically state or local school boards). Authorizers hold charter schools accountable for meeting their goals and objectives related to their mission and academic targets. Schools that do not meet their goals and objectives or do not abide by the terms of the contract can have their charter revoked or—when it is time for renewal—not renewed.

The charter school movement has grown rapidly from the first two charter schools opening in Minnesota in 1992 to more than 5,500 schools in 41 states and the District of Columbia as of 2012. Estimates of total student enrollments in 2012 are that close to two million students are enrolled in charter school within the United States; this accounts for nearly 5% of all public school enrollments. While the impact of charter schools appears minimal at the national level, a dozen cities or school districts

have seen the proportion of charter school students rise to capture more than a third of all public school students.

Beyond the United States, charter schools can be found in Canada and Puerto Rico. The charter school concept is also very similar to reforms initiated in other countries at approximately the same time. In the United Kingdom, there was the creation of grant-maintained schools, and in New Zealand and Sweden, independent schools were initiated. These various reforms are part of a larger set of national and international trends that have sought to restructure public education through decentralization, site-based management, privatization, and the use of market mechanisms. Proponents argued that restructuring public education would make it more efficient and responsive. One of the main reasons for the rapid and widespread growth of the charter movement in the 1990s was that it provided a vehicle to pursue many or most of the goals related to school restructuring. Another reason for the growth of charter schools is that this reform has been championed by a wide range of supporters, from those who saw these schools as a stepping stone to vouchers to those who saw charter schools as a compromise that would avoid vouchers and widespread privatization.

Policy Objectives and Theoretical Arguments

Charter school reforms involve a set of policy changes—brought about mostly through changes in state law—that alters the legal, political, and economic environment in which schools operate. The structural changes provide an opportunity for charter schools to experiment. Thus, the charter concept is rather different from other education reforms in that it does not prescribe specific interventions; rather, it was designed to change the governance and conditions under which schools develop and implement educational interventions.

At the heart of the charter concept lies a bargain. Charter schools will receive enhanced autonomy over curriculum, instruction, and operations, but in exchange, they must agree to be held more accountable for results than other public schools. This new system of accountability holds charter schools accountable for outcomes—many of them articulated in the charter contract—and then employs deregulation to allow them to choose their own means for arriving at those goals. If charter schools do not live up to their stated goals, they can have their charter revoked or not renewed when it expires. This type of accountability is referred to as performance accountability. Charter schools also are steered by market accountability since these are schools of choice and money follows the students; therefore, charter schools that fail to attract and retain students will, in theory, go out of business. Yet closure rates are relatively low, and most charter schools that close do so because of financial mismanagement rather than performance or market accountability. The burden of producing evidence regarding charter school success has shifted to external evaluators or authorizers. Charter schools—on the whole—have not been proactive with regard to accountability: Instead of being "evaluating schools" that would take responsibility for evaluation and demonstrating success, they have become "evaluated" schools.

A common policy objective seen in state charter school laws is that charter schools would empower local actors and communities to start their own schools. In the 1990s, local groups and individuals were most often involved in starting new charter schools, but since 2000, the trend has been for outsiders, particularly private education management organizations (EMOs), to initiate the process of opening new charter schools, which are then steered from often distant corporate headquarters.

Another policy objective often found in charter school laws is that these new schools would create new opportunities for school choice. With few exceptions, they are open to students from any district or locale. Theoretical arguments suggest that school choice will lead to sorting by preferences, which will reduce the amount of time schools spend resolving conflicts among school stakeholders, leaving them more time and energy to devote to developing and implementing educational programs. Related to this is the belief that the very act of choice will leave students, parents, and teachers disposed to work harder to support the schools they have chosen.

As commonly articulated in charter school laws, these new schools would have open access to all students. Evidence, however, suggests that charters attract and enroll groups sorted by race, class, ability, and language. In terms of ethnic composition and the proportion of low-income students, three quarters of existing charter schools have student populations that differ from those of local school districts by more than 10 percentage points. In terms of student composition based on students with

disabilities or students classified as English-language learners, the findings show substantially larger differences, with charters serving far fewer of these students than district schools.

A common policy objective for charter schools is that they enhance opportunities for parental involvement. Parents who choose schools can be expected to be more engaged than those who do not. Beyond that, proponents of the charter concept contend that such involvement is a valuable resource that will ultimately lead to higher student achievement and other positive outcomes. The research evidence to date indicates that charter schools have been able to enhance parental involvement. Evidence suggests that parent satisfaction has been one of the strengths of charter schools. Most of this evidence, however, is based on surveys of parents whose children remain in charter schools and excludes parents whose children have left these schools. Nevertheless, the fact that charter schools are growing in size and number is a strong indication of the demand that still exists for these schools.

Another policy objective linked with charter schools is enhanced professional autonomy and opportunities for professional development for teachers. Charter schools are potentially schools of choice for teachers as well as for parents and students. The charter school concept suggests that allowing teachers to choose schools with educational missions and approaches that closely match their own beliefs and interests promotes a shared professional culture and higher levels of professional autonomy, which should ultimately lead to improved levels of student achievement. Although some charter schools have created and fostered professional opportunities for teachers, the overall evidence on this objective does not suggest that this has been realized. High levels of teacher attrition indicate that teachers are not finding suitable professional learning communities in charter schools. High levels of teacher attrition may, in part, be influenced by the fact that charter school teachers tend to be younger, work longer hours, and receive less pay than teachers in regular public schools.

Advocates believe that charter schools can improve all public schools by sharing innovations and/or through the threat of competition. It is argued that without competition, traditional public schools will not strive to improve. Opponents of charter schools argue that charter schools can hurt traditional public schools by creaming off the less-costly-to-educate students and by forcing limited resources to be split across two parallel school systems. Proponents argued that charter schools could function as public education's research and development sector, and their benefits would extend to traditional public schools that adopted and emulated their innovations. Greater emphasis on innovations was visible in the 1990s, but over time, research indicates, charter schools are not more likely than traditional public schools to innovate.

Some charter school advocates see these schools as laboratories for experiments in the use of privatized services. Proponents argue that increased school choice and privatization will bring a much needed dose of entrepreneurial spirit and a competitive ethos to public education. According to these advocates, schools will run more efficiently by contracting out parts of or all the services they provide. Charter schools, as it turns out, have provided a quick and easy route for privatization as many states allow private schools to convert to public charter schools and most states allow charter schools to contract all or part of their services to private EMOs. While some states have no charter schools operated by EMOs, others, such as Michigan, have more than 80% of their schools operated by EMOs. In 2012, close to 44% of all public charter school students were enrolled in privately managed charter schools. The involvement of EMOs, and the organization of charter schools into networks or franchises headed by an EMO, is counter to one of the early ideals of the charter school movement, namely, that charter schools would be small and locally run.

An argument in favor of charter schools is that they would be high-performing schools where children would learn more. Notwithstanding the pressure for performance on state assessments, a growing body of evidence indicates that charter schools generally perform similarly to demographically matched traditional public schools on standardized tests. States that have better results tend to have fewer for-profit EMO-operated schools, they tend to have fewer charter schools in operation, and they close more poorly performing charter schools.

The research base to support most of these theoretical arguments is largely borrowed from economics and political science; to a large extent, they remain unproven within the education sector. While the research base is still somewhat limited, over time more sound evaluation and research have

replaced the rhetorical or theoretical pieces that earlier dominated the literature on charter schools.

Challenges and Obstacles

Among the biggest challenges that charter schools face are the following:

1. High attrition rates among teachers and administrators

2. Rapid growth of schools in some states, which permitted some less well-prepared applicant groups to open schools

3. Access to school buildings, or at least to low-interest bonds to secure facilities

4. Ability of the schools to direct public resources to instructional costs due to high fees and expenses for the private EMOs

5. Ability to comply with demands for transparency, which is being affected by private management

6. Increasingly polarized support

The charter school ideal has been altered over time, and many agree that the charter school reforms seen today have strayed from the original ideal. There are a number of factors that explain the shift over time, including insufficient or ineffective oversight, insufficient autonomy granted to these schools, insufficient funding to develop new and innovative practices, and increasing involvement by private EMOs that open and drive the growth of these reforms.

Although the purpose and design of charter schools have changed over time, and although charter schools still face considerable obstacles and challenges today, both opponents and proponents recognize that charter schools are now an integral part of our school systems.

Gary Miron

See also Privatization; School Choice

Further Readings

Lubienski, C. A., & Weitzel, P. C. (2010). *The charter school experiment: Expectations, evidence, and implications.* Cambridge, MA: Harvard Education Press.

Miron, G., Welner, K., Hinchey, P., & Mathis, W. (Eds.). (2013). *Exploring the school choice universe: Evidence and recommendation.* Charlotte, NC: Information Age.

Wohlstetter, P., Smith, J., & Farrell, C. C. (2013). *Choices and challenges: Charter school performance in perspective.* Cambridge, MA: Harvard Education Press.

Childhood, Concept of

The rationale for any concept of childhood lies, of course, in the idea that childhood is something distinctively different and separate from its Other, which most obviously is adulthood. *Childhood* and *adulthood* have long since formed a contrastive pair, similar to the notion of *young*, which is unthinkable apart from *old*. From the philosophers of Hellenic antiquity to modern psychology, education, and the social sciences, confidence in this distinction has held sway, and across centuries, various *conceptions* of childhood have been produced based on particular views about childhood's difference from adulthood. These conceptions, especially the views on childhood created in modern developmental psychology, continue to influence educational thinking and pedagogical practice in both educational and other institutions involved in things such as social work, health care, and jurisdiction. To a great extent, however, sociologists and anthropologists have relied on dominant psychological notions of childhood. Only fairly recently, in tandem with the increasing interest in the social conditions and the rights of children worldwide, has there been critique of the dominant understanding, followed by reconceptualization.

Childhood is an ambiguous concept. While obviously there is an important difference between *children* and *childhood*, surprisingly often these two are conflated. The belief seems to be that a concept of childhood is created by answering the question What is the child? The more central concept of the two is *the child*, and *childhood* seems to have taken meaning on the basis of particular understandings of this concept. Most definitions of childhood operate in this way, in both scholarly literature and our common everyday knowledge. The Oxford English Dictionary, for instance, defines childhood as "the state or stage of life of a child; the time during which one is a child." Only fairly recently, in the multidisciplinary ("new") field of childhood studies, has a clear conceptual distinction between children and childhood been introduced.

The following sections introduce five ways of conceptualizing childhood as they have been developed and used in the social science field: (1) the

stage concept, (2) the developmental concept, (3) the socialization concept, (4) the everyday-world concept, and (5) the structural concept.

The Stage Concept of Childhood

Earliest Western notions of childhood were based on schematic divisions of human life into a number of "Ages of Life," from birth to death. According to Aristotle, for instance, all living things traverse an arc of three ages: (1) *augmentum*, (2) *status*, and (3) *decrementum*; Shakespeare (in *As You Like It*, 1623) divided the life cycle into seven stages.

The *stage* notion of human life, ingrained in traditional wisdom, has long been the prototypical form of thinking about childhood. Both John Locke and Jean-Jacques Rousseau relied on the stage notion of childhood, although in opposing ways. For Locke, the child was a blank slate (*tabula rasa*), and childhood was the coming to reason of this child as perception and experience fill his mind (*An Essay Concerning Human Understanding*, 1690). Rousseau, in contrast, proposed (*Émile*, 1762) an "authentic" child that has an innate capacity for reason. For both thinkers, childhood was to be seen as qualitatively different from other stages in the life cycle of the human being, and both also gave instruction on how the child should be educated.

Childhood became the object of scientific investigations in the second half of the 19th century. Child study was initially motivated by the quest to discover the origins and specificities of the mind of the human *adult*. The theory of the time was *cultural recapitulation*, originally proposed by Ernst Haeckel, the idea that in the course of his development over a lifetime (ontogeny) the individual repeats the patterns and stages exhibited by the evolution of the species ("ontogeny recapitulates phylogeny"). Accordingly, because children, relative to the adult, were seen as intellectually immature, incomplete, and lacking, it was believed that by studying the child the necessary steps for subsequent development toward full maturity (adulthood) could be revealed. Charles Darwin (himself not an advocate of the recapitulation thesis) was one of the first to write systematic notes on the changes that he observed in his own son (*Biographical Sketch of an Infant*, 1877), his interest being in the relative contributions of a child's inherited endowment and the child's environmental experience.

In time, the recapitulation theory was abandoned, but the idea of "progress," or "development," taking place in the lifetime of the individual, and especially during the time of childhood, was retained, and it came to form the basis of the emerging "child sciences"—first pediatrics and child psychiatry, and later developmental psychology. The specific idea of childhood *development* has had a strong impact also on other social science disciplines inasmuch as they became concerned about children and childhood.

The Developmental Concept of Childhood

The dominant notion of childhood in the late 18th century and since then is that of being in the state of development toward adulthood. The concept of *development* was the foundational basis for the new discipline of developmental psychology. It was understood to be not just a neutral term for the biological and psychological changes that occur in human beings over time. Besides constant change, development implies a particular *direction*, *improvement* (progress), and *goal* (or end point)—of change. The goal of childhood in this conceptualization is to reach mature, autonomous adulthood; to be a child is to be not mature, not yet mature, and in the process of *becoming* mature. Thus, developmental psychology sought to identify orderly sequences of progressive change in the child as he is "growing up," aiming at discovering universal, context-independent stages, and phases of development along various dimensions. The practical goal was to establish chronological (age-related) group norms and milestones of progress for the journey of the young through this childhood phase.

Sigmund Freud's model of psychosexual development, Jean Piaget's model of cognitive development, and Lawrence Kohlberg's model of moral development are based on the developmental concept of childhood: In their theories, they have posited universal stage progressions from a primal, egocentric child to an autonomous adult.

In the most recent three to four decades, the *universalist* position on child development has been firmly contested by arguing that the child's development is inextricably bound up with his sociocultural conditions and changes: Development emanates from the interplay between the child, his immediate environment, and the larger contexts in which the child and the setting are embedded. Any valid concept of child development cannot be but a *contextual* one. Consequently, the normalizing elements of the universalist position ("normal" development and its milestones) have to be questioned.

Contextualist conceptions of child development are being developed, especially by scholars related to the cultural-historical school and the Vygotskian tradition. However, the debate on what drives children's development—the nature/nurture debate—has not been settled within developmental psychology.

A second strand of critique has been concerned with the idea of development itself, not just the context in which development occurs. Based on new knowledge about the variability of children's lives globally and as revealed in historical studies of childhood, and influenced as well by postmodern epistemologies, the argument has gained favor that development and childhood are social and cultural "inventions" or "constructions," and Western constructions at that. This antidevelopmental and antiprogressivist critique of the developmentalism deeply ingrained in the psychology of childhood has yet to produce its own (postdevelopmental?) alternative to the dominant conceptions of childhood.

Childhood as Socialization

Socialization has existed in sociology as the counterpart of the concept of development since the early days of the discipline. Just as the developmental concept depicts the child as not mature, not yet mature, and in the process of *becoming* mature (adult), the concept of socialization retains all these characteristics. The essential difference between the two notions is the greater focus of the latter on the societal (social, cultural) factors that make a child's development (socialization) take place. Similar thinking also has been prevalent in anthropology, where *enculturation* is the corresponding term.

The French early-20th-century sociologist Émile Durkheim is considered the founder of the idea of socialization. Generally, sociology has been noted for its marginal interest in children and childhood, for as Chris Jenks (1982) writes, "social theorists have systematically endeavoured to constitute a view of the child that is compatible with their particular visions of social life" (p. 9). This holds also for Durkheim—the concept of socialization emerged as a corollary of his theory of (adult) society. According to Durkheim (1911/1956), *socialization* refers to the social forces that make social life possible by drawing people together into a community, and it is specifically exercised (especially through education) on "those that are not ready for social life" (p. 71). The constraining effect of socialization on individuals takes place through their "internalization" of social

"facts" that originally are external to and independent of them. Thus, in Durkheim's thinking, there is a psychological aspect (internalization) to the social process of socialization.

In the 1940s and 1950s, the American social theorist Talcott Parsons (1951) adopted the notion of socialization to account for the mechanisms by which societies deal with "what has sometimes been called the 'barbarian invasion' of the stream of new born infants" (p. 208). In his systemic and functionalist theory of social life, children are conceived as being a threat to society, and they must therefore be appropriated and shaped to fit in. In this case, the socialization of children is effected by laying down in childhood the major value orientation patterns of society.

Critiques of overly functionalist and deterministic conceptions of childhood socialization developed since the 1970s, particularly in North American social psychology. New approaches to socialization were inspired by interpretive approaches (symbolic interactionism, ethnomethodology) that involved seeing socialization as a complicated process of interaction. In contrast to earlier conceptions, children were no longer seen as passive targets of "agents" of socialization (e.g., family, school) but, rather, were viewed as active partners.

The Everyday-World Concept of Childhood

Still, until the 1980s, "socialization" functioned as the main conceptual tool for social scientists to address children and childhood. Similar to the anti- and postdevelopmentalist trends that challenged the progressivist and universalist notions in developmental psychology, within sociology a critique on socialization has grown since the 1980s and has led to theoretical reconceptualization.

The "rediscovery of childhood in sociology" (Corsaro, 2005) was based not only on the increasing critique of the individualistic and forward-looking connotation of dominant concepts of socialization. There was also a growing confidence in the innovative and creative aspects of children's participation in social life, confirmed in new studies on the competences of infants and young children. Building on earlier phenomenological thinking about children's role in everyday interaction, and increasingly fed by postpositivist epistemologies, especially social constructionism, and fueled by new historical and anthropological knowledge about the enormous variability of children's lives across time

and place, the new conceptualization of childhood was in terms of a *social construction.*

With confidence in the active participation of children in the construction of their everyday lives, the constructionist concept of childhood took its meaning to refer to children's active everyday lives in all their dimensions: their activities, interactions, experiences, beliefs, and so on. Seen to be involved in the daily "construction" of their own and other people's everyday relationships and life trajectories, children as "social actors" became the new conceptualization of childhood. This is also the key orientation of the "new paradigm for the sociology of childhood" proposed in the beginning of the 1990s (James & Prout, 1997). Conceptualizing every child now as a social actor implied, moreover, that each child has his or her own unique childhood; thus, there is a plurality of childhoods for researchers to study.

The Structural Concept of Childhood

A second conception of childhood has been developed within the ("new") sociology of childhood: childhood conceptualized as a structurally formed (or "constructed") social space for children to inhabit (Qvortrup, Bardy, Sgritta, & Wintersberger, 1994). This conception implies the existence in a society of a relatively permanent social category ("children"), and a social and political status that goes with occupancy of the culturally, politically, economically constructed childhood space, in whatever way the category is defined in a particular society.

The structural concept of childhood thus indicates that childhood is a constant feature of the structure of society, comparable with, for example, social class or gender, with which it necessarily intersects. For the inhabitants of the childhood space (i.e., children), any historical childhood is, of course, temporary, for children enter the space at birth (if not earlier) and grow out of it as they enter the next category, but childhood remains.

Hence, childhood as a structural category is also a *generational* category (and concept) that can exist, as both a concept and a social space, only in relation to other generational categories, most obviously the category of adulthood. Thus, both childhood and adulthood, as structural categories, are usefully conceptualized as sets of interrelated social, cultural, political, and economic relations (Alanen & Mayall, 2001; Qvortrup et al., 1994). The usefulness of this conceptualization is in its assistance to researchers of educational issues as they extend their focus beyond

psychology and sociology to cultural, political, and economic studies.

Leena Alanen

See also Century of the Child, The: Ellen Key; Children's Rights; Locke, John; Piaget, Jean; Psychoanalytically Oriented Theories of Child Development; Recapitulation, Theory of; Rights: Children, Parents, and Community; Rousseau, Jean-Jacques; Social Constructionism

Further Readings

Alanen, L., & Mayall, B. (Eds.). (2001). *Conceptualizing child-adult relations.* London, England: RoutledgeFalmer.

Burman, E. (2008). *Deconstructing developmental psychology* (2nd ed.). Hove, England: Routledge.

Cleverley, J., & Phillips, D. C. (1986). *Visions of childhood: Influential models from Locke to Spock.* New York, NY: Teachers College Press.

Corsaro, W. A. (2005). *The sociology of childhood.* Thousand Oaks, CA: Pine Forge Press.

Durkheim, É. (1956). *Education and sociology* (S. D. Fox, Trans.). Glencoe, IL: Free Press. (Original work published 1911)

James, A., & Prout, A. (Eds.). (1997). *Constructing and reconstructing childhood.* London, England: Falmer Press.

Jenks, C. (1992). *The sociology of childhood.* Aldershot, England: Gregg Revivals.

Morss, J. R. (1996). *Growing critical: Alternatives to developmental psychology.* London, England: Routledge.

Parsons, T. (1951). *The social system.* Glencoe, IL: Free Press.

Qvortrup, J., Bardy, M., Sgritta, G., & Wintersberger, H. (Eds.). (1994). *Childhood matters: Social theory, practice and politics.* Aldershot, England: Avebury.

Qvortrup, J., Corsaro, W. A., & Honig, M.-S. (Eds.). (2009). *The Palgrave handbook of childhood studies.* London: Palgrave Macmillan.

CHILDREN'S RIGHTS

Whether children should have rights, what it means to attribute rights to them, and which rights—if any—are appropriate for children are contentious questions among philosophers who write on this topic. An easy response is that children have their rights specified in the United Nations Convention on

the Rights of the Child (UNCRC), on the grounds presented in the convention and that a child is any person younger than 18 years, except where national law stipulates otherwise. This easy response sidesteps persistent lines of debate about matters such as the purpose and meaning of rights, the moral status of children, and the relationship between *legal* (or *positive*) rights and *moral* (or *fundamental*) rights. Children do have legal rights; they have them by virtue of international law and, in many countries, through national legislation and jurisprudence. The question at issue is whether, when, and why it is appropriate to attribute fundamental human rights to children. This entry sketches a brief history of children's rights and presents some central concepts and lines of dispute about the existence, content, and scope of children's fundamental rights.

Historical Overview

Although the notion of children's rights appeared as early as 1796 with the publication of Thomas Spence's *The Rights of Infants*, only in the late 19th and early 20th centuries did children come to be widely regarded as putative rights bearers. This change accompanied a gradual change in children's moral status from property to persons. Protection rights, the first category of children's rights to emerge, had their roots in the child-saving practices toward the end of the 19th century, when philanthropic and state agencies in Europe and North America began to intervene in family life to ensure the health and welfare of children. Early in the 20th century, partly in response to these social reform movements, children were accorded the status of future persons in need of protection and nurturance. The Geneva Declaration of the Rights of the Child of 1924 epitomized this approach, as did the United Nations Declaration of the Rights of the Child in 1959. Neither had legal force, and both were paternalistic in assuming that parents or other authority figures best determine children's present and future interests.

In the second half of the 20th century, as part of a global movement for the extension of human rights, children were accorded the status of existing persons with qualified rights to self-determination. The UNCRC, approved by the United Nations General Assembly in 1989, is a legally binding international treaty that recognizes children's self-determination rights in relation to their evolving capacities, as well as their rights to protection and nurturance.

Categorizing Rights

Philosophers typically distinguish two categories of rights: (1) a*gency rights* (also called autonomy or self-determination rights) and (2) *welfare rights* (also called social rights). Agency rights involve their bearers in making reasoned choices about how to act; welfare rights entitle their bearers to crucial sources of well-being, such as health care, shelter, and education. A different categorization, used in histories of human rights and in international law, distinguishes between *civil*, *political*, *and social rights*. On further analysis, these three categories can be reduced to two. Civil and political rights safeguard choice and are thus agency rights; social rights safeguard conditions for well-being and are thus welfare rights.

Another categorization, used solely with respect to children, distinguishes *provision*, *protection*, *and participation* rights. Among the proponents of children's rights, one criticism of this categorization is that it involves a category mistake arising from a misreading of the UNCRC and its supporting documents: "provision," "protection," and "participation" refer not to kinds of rights but to central principles of the UNCRC and to the articles that give expression to them. Another criticism presupposes that children's rights are a recent step in the expansion of the scope of human rights. If so, then, it is inconsistent to use one set of terms for children and another for adults. Also, on the face of it, the "3-P" categorization suggests that children's rights are not human rights and, thus, that children do not count as humans in the relevant respects.

How different theorists categorize rights depends on their purpose in doing so. For example, a distinction between agency and welfare rights may serve as a first move in defending the claim that while children do have some rights, they do not have the same rights as adults. Conceptualizing children's rights as human rights enables a comparison of the status and history of children's rights against the rights of other people and leads to the observation that women and Black people were once also denied rights, on grounds similar to those used to deny children moral status as rights bearers.

Should Children Have Rights?

Two opposing conceptions of rights lie at the heart of philosophical disputes about children's rights. On the one hand, rights serve to protect the *choices* of rights bearers; on the other, rights serve to protect important *interests*. The *choice* (or will) theory underpins

much of the skepticism about the attribution of moral rights to children. Although the *interest* theory provides a stronger foundation for children's rights, it need not imply that children should have equal rights with adults. It can instead support the conclusion that children should have rights appropriate to their evolving capacities and to their status as children.

Autonomy, agency, and capacity are pivotal notions in disputes about children's rights, as illustrated in two contrasting images of childhood: the "competent or autonomous child" and the "incompetent or dependent child." Both images figure in the UNCRC, with the dependent child as the subject of so-called protection rights and the autonomous child as the bearer of so-called participation rights. They figure, too, in controversies about the scope and moral weight of children's rights.

Skeptical Views

Several different lines of argument support the view that it is wrong to ascribe rights to children or, more modestly, that children cannot be bearers of agency rights. Three will be outlined here. Call them the arguments *from capacity*, *from the nature of childhood*, and *to consequences*.

The argument from capacity assumes that people cannot and should not have moral rights unless they have the requisite capacities. Capacity is a central idea in the choice theory of rights, which assumes that persons are rational, moral agents whose dignity and equality rest in their freedom to act for reasons. From this perspective, children cannot possess rights, as they do not yet have the cognitive and volitional abilities required for making and acting on rational choices. Capacity is at issue in a second way. Regardless of whether rights are seen as protecting choice or protecting interests, the content of many rights implies specific capacities. For example, a being that is incapable of speech cannot meaningfully be said to have a right to free speech. Self-determination rights depend on capacity; welfare rights arguably do not. Skeptics about children's rights argue that children—or at least young children—lack crucial abilities, such as knowing how to obtain relevant information and handle it systematically, appreciating the significance and consequences of different options, and being able to act in light of consistent values and stable beliefs. On the choice theory, arguments from capacity deny that children can be rights holders at all; on the interest theory, arguments from capacity grant that children

have welfare rights, but they disqualify children from holding the same agency rights as adults.

Arguments from the nature of childhood come in several versions, only one of which will be considered here. In a much cited article, Onora O'Neill contends that an understanding of what adults morally owe to children is properly grounded not in rights but in obligations. Two different kinds of obligation—perfect and imperfect—pertain to the relationship of adults to children. Perfect obligations have corresponding rights; imperfect obligations do not. A *perfect obligation* completely specifies to whom the obligation is owed and what is owed to them. For example, a *universal perfect obligation* to all children requires adults to refrain from abusing children. A *specific perfect obligation* is one owed to specified children by specified agents, such as social workers who have undertaken to care for specified children. *Imperfect obligations* require us to do or refrain from doing some action for unspecified others but not for all others. An example is the obligation for adults to be kind and caring in dealing with children. While this obligation may be binding on all adults, it cannot be one that we owe to all children because what is involved in meeting the obligation depends on the circumstances. A *fundamental imperfect obligation* leaves open both how it is to be enacted and for whom. It thus cannot be correlated with a corresponding right. According to O'Neill, any view that takes rights as the moral foundation for what is owed to children fails to capture the imperfect duties of care and concern that are necessary for protecting and valuing children's lives. Another version of the argument from the nature of childhood proposes an ethic of care, not rights, as a better way of meeting children's needs.

The argument to consequences considers what would follow from granting rights to children. It rests on the idea that to pursue their goals and lead valuable lives, adults must have certain character traits and capacities, which are acquired during childhood through proper upbringing and discipline. Granting children freedom to exercise their rights undermines these preconditions for their having fulfilling adult lives. Such license, it is argued, has adverse consequences not only for the children themselves and for the adults they will become but also for the society of which they are members.

Arguments for Children's Rights

Children's vulnerability to harm and neglect and their dependency on adults for care have a moral

urgency that may seem best addressed by ascribing rights to children. But an appeal to children's high vulnerability and dependency could as well be grounds for an ethics of care. A more forceful argument is that human rights are universal and apply to all humans regardless of race, gender, age, or ability, even though historically, women and Black people, and now children, have had to struggle for recognition as rights bearers and persons. This view takes respect for human dignity as the central idea in the attribution of rights; to deny fundamental rights to a person casts doubt not only on her dignity but also on her independent moral standing. However, even if respect for human dignity is taken as the sole warrant for children's rights, the skeptical arguments still require a response.

Rebuttals of the argument from capacity can deny that capacity is a qualifying condition for rights or may grant that it is but raise questions about the meaning, reach, and acquisition of capacity. Those who deny capacity as a qualifying condition commonly claim that humanity is all that is required for moral recognition as a rights bearer. Another line of argument rejects the centrality of capacity in rights talk on the grounds that it protects powerful elites and so reinforces existing social hierarchies.

Suppose, however, that a proponent of children's rights acknowledges, as many do, that some kinds of rights depend on those capacities involved in making choices and acting on them, then the argument from capacity is not yet answered. One answer grants that children, especially young children, do not have the necessary capacities for self-determination rights, but it suggests that they will acquire capacity only through the (appropriately guided) exercise of their rights. To deny children their rights, then, is to keep children in a state of dependence and hinder their development into mature adults able to exercise choice responsibly. A second answer is that children, even very young infants, do have the capacity for choice, where this is understood as being able to express preferences. The skeptic can concede that even infants express preferences but argue that one cannot be a rights holder without an ability to understand and appreciate the significance of the options facing one. Of course, many adults do not meet this more demanding standard of capacity, and yet we do not, on these grounds, deny that they have self-determination rights.

Capacity is not an all-or-nothing affair, entirely absent or fully present. The notion of evolving capacities underpins the UNCRC and is presupposed by gradualist conceptions of children's rights. Gradualism, in its various forms, acknowledges the child both as a person now and as the future person she will become. One form of gradualism suggests that children move progressively from a situation in which their rights primarily protect their interests to one in which their rights primarily protect their choices. It is consistent with a gradualist account that children be given opportunities to exercise choice and participate in decisions affecting them, in ways appropriate to their current levels of maturity and capacity. Education has an important role to play here. On a gradualist account, while children and adults have some rights in common, there are important differences in kind between the rights of children and those of adults.

A rebuttal of the argument from the nature of childhood concedes the importance of imperfect obligations in the relationship between adults and children, particularly parents and their children, but denies that this rules out children's rights. Care and rights are not in competition. Seeing children as rights holders shapes and constrains our actions regarding them and in familial relationships helps form appropriate enactments of love and care.

Rebuttals of the argument to consequences may grant that to pursue their goals and lead valuable lives, adults must have certain dispositions and capacities, which are acquired during childhood through proper nurture, support, and discipline. The view that children's rights undermine these conditions is open to three criticisms: (1) it applies only to agency or self-determination rights, not to welfare rights; (2) it conflates children's rights with license for children to do as they please; and (3) it fails to recognize that the enabling dispositions and required capacities may be acquired through children's exercise of circumscribed agency rights.

On balance, while choice theory captures the sorts of rights that autonomous agents have, interest theory is equally coherent and justifies the attribution of rights to children. Acknowledging children as rights bearers draws attention to their independent moral standing and human dignity.

Shirley Pendlebury

See also Autonomy; Childhood, Concept of; Moral Development: Lawrence Kohlberg and Carol Gilligan; Noddings, Nel; Right to an Education; Rights: Children, Parents, and Community

Further Reading

Archard, D. (2004). *Children, rights and childhood* (2nd ed.). London, England: Routledge.

Brennan, S. (2002). Children's choices or children's interests: Which do their rights protect? In D. Archard & C. Macleod (Eds.), *The moral and political status of children* (pp. 53–69). Oxford, England: Oxford University Press.

Brighouse, H. (2002). What rights (if any) do children have? In D. Archard & C. Macleod (Eds.), *The moral and political status of children* (pp. 31–52). Oxford, England: Oxford University Press.

Federle, K. H. (1994). Rights flow downhill. *International Journal of Children's Rights, 2,* 343–368.

Freeman, M. (2007). Why it remains important to take children's rights seriously. *International Journal of Children's Rights, 15,* 5–23.

O'Neill, O. (1998). Children's rights and children's lives. *Ethics, 98,* 445–463.

Chinese Philosophical Traditions and Education

See Confucius

Chomsky, Noam

Avram Noam Chomsky (1928–) is a theoretical linguist, philosopher, and social critic. His 1957 book, *Syntactic Structures*, proposed a theory of grammar that led to the transformation of the field of linguistics and has also been an important stimulus in the areas of education concerned with language acquisition. However, he is more popularly known as a political commentator and dissident who constructs detailed, evidence-driven critiques of the exercise of power by political elites, the mass media, corporate capitalism, and the state, often focusing on the foreign policy of the United States. This aspect of his work also has important implications for the curriculum and conduct of education. In sum, as a result of the range and influence of his thought, Chomsky has been described as the most important intellectual alive today. This entry describes the essence of both prongs of his work and its implications for education.

Chomsky's parents were immigrants from Russia and middle-class Hebrew schoolteachers. His father was also a scholar of medieval Hebrew. Chomsky attended an experimental elementary school, Oak Lane Country Day School, whose founders were involved in the progressive education movement and were influenced by the educational philosophy of John Dewey. As a young man, Chomsky was involved in a branch of the Zionist movement focused on socialist binationalism and Arab–Jewish cooperation.

He attended the University of Pennsylvania, where he received his BA (1949), MA (1951), and PhD (1955). He joined the faculty of the Massachusetts Institute of Technology in 1955 and was appointed as full-time professor in 1965. During the course of a distinguished career, he has received numerous honors for his scholarship, including more than 25 honorary degrees.

Chomsky's early research in linguistics sparked a paradigmatic revolution in the field. Structural linguistics, which originated in the early 20th century, was a classificatory science focused on organizing the basic elements of human languages. Research methods in the field were based on the assumptions of philosophical positivism. Structural linguistics treated language as a static system of interconnected units; the basic approach was to examine a selected "corpus of utterances" in an attempt to classify the elements of the corpus into different linguistic levels (e.g., phonemes, morphemes, etc.). Chomsky argued that while this approach was adequate for phonology and morphology, it was inadequate for explaining sentences (syntax). His critiques of structural linguistics led to the development of generative grammar, which shifted the subject matter of the field to speakers' linguistic competence or their knowledge of how to create and understand sentences. As a result, the goal of linguistics was transformed from the classification of language elements to the creation of a set of rules that could generate all sentences of a language and ultimately explain all linguistic relationships between the sound system and the meaning system of a language.

Chomsky's theories derive from two fundamental observations of language: (1) grammar describes the basic knowledge shared by all speakers of a language and (2) the human use of language is fundamentally creative. He argues that the properties of generative grammar come from an "innate" universal grammar; that is, all languages have the same basic principles and are genetically determined. Language acquisition then is not a matter of habit or sensory experience (e.g., children imitating sounds, repeating words, and responding to positive and negative reinforcement, as behaviorist theories would have it). Rather, in Chomsky's view, humans have an instinctive mental capacity that enables them to learn and

produce language without being taught. From this theoretical vantage point, in 1959, Chomsky wrote an important critical review—widely regarded as devastating—of the behaviorist B. F. Skinner's theory of language acquisition.

Chomsky's political views fall into the broad category of anarchism, which opposes authority, coercion, or hierarchical organization in human relations. Chomsky has described himself as a libertarian socialist. He believes that there is a fundamental need in human nature for creative work and inquiry that are not arbitrarily limited by coercive institutions. His vision of a social order that would maximize this fundamental human characteristic is a federated, decentralized system of free associations that incorporate economic and social institutions, or what has been called anarcho-syndicalism. His political agenda might be described as seeking out forms of authority and domination and challenging their legitimacy. Chomsky has stated that beyond some tenuous points of contact, he sees no intellectually convincing connections between his anarchist political convictions and his scholarship on human intelligence.

Chomsky the political dissident first came into the public eye when he spoke at a protest against the Vietnam War on the Boston Common in October 1965. But it was his 1967 article "The Responsibility of Intellectuals," originally published in *The New York Review of Books*, that established him as the leading American intellectual in the antiwar movement. His book *American Power and the New Mandarins* (Chomsky, 1969) was one of the earliest and most significant works of social and political thought to emerge from the Vietnam War era. His antiwar activism resulted in several arrests and associated him with the New Left Movement, of which he was generally critical. The former U.S. president Richard Nixon included Chomsky on his infamous "Enemies List."

In the 1980s, Chomsky began to examine and write about the media and democracy. *Manufacturing Consent* (written with Edward Herman) is a political economy of the mass media that proposes a "propaganda model" to describe how money and power filter the news in ways that marginalize dissent and allow government and corporate capitalist interests to propagandize the public. His book *Necessary Illusions: Thought Control in Democratic Societies* deconstructs representative democracy, illustrating how capitalist elites control the state while the public merely observes.

In practice, democracy becomes a system of elite decision making and public ratification, or what he calls "spectator democracy." Correspondingly, the dominant interests view popular involvement in public policymaking as a threat. Chomsky argues that indoctrination of the political class and diversion of the masses make up the essence of democracy as practiced in the United States.

Based on his political philosophy and his assessments of the mass media and government, it is not surprising that Chomsky has described education, or more particularly schooling, as a system of imposed ignorance. He argues that, like the mass media, schools succeed in domesticating youth by operating within a propaganda framework that has the effect of distorting or suppressing unwanted ideas and information and creating "necessary illusions" and "emotionally potent oversimplifications" to keep people isolated from important issues. Questions that are offensive or embarrassing to the doctrinal systems are ignored. Information that is inconvenient is suppressed.

Chomsky has argued that if schools were serving public (as opposed to private) interests, they would be providing students with techniques of intellectual self-defense so that they could protect themselves from manipulation and control. Chomsky has recalled his own early education in a progressive school as an example of this—a school where children were encouraged to study and investigate as a process of discovering the truth for themselves.

E. Wayne Ross

See also Apple, Michael; Behaviorism; Cognitive Revolution and Information Processing Perspectives; Democratic Theory of Education; Indoctrination; Language Acquisition, Theories of; Progressive Education and Its Critics

Further Readings

Chomsky, N. (1969). *American power and the new mandarins.* New York, NY: Pantheon Books.

Chomsky, N. (1987). *The Chomsky reader.* New York, NY: Pantheon Books.

Chomsky, N. (1989). *Necessary illusions: Thought control in democratic societies.* Boston, MA: South End Press.

Chomsky, N., & Macedo, D. P. (2000). *Chomsky on miseducation.* Lanham, MD: Rowman & Littlefield.

Herman, E. S., & Chomsky, N. (1988). *Manufacturing consent: The political economy of the mass media.* New York, NY: Pantheon Books.

CHURCH AND STATE

The relationship of church and state—or, more broadly, religion and state—is crucial to educational theory and philosophy in light of the profound impact that religious freedom can have on the structure and content of education, including civic education, in a particular society.

There is no fixed or natural relation between religion and state. Globally, religion and state are related in diverse and complicated ways that produce widely divergent levels of religious freedom. States that establish (i.e., legally promote, protect, or favor) one or more religions may strictly punish deviance from the state religion (as in Saudi Arabia) or they may protect the religious freedom of all citizens (as in the United Kingdom). Some states without established religions nevertheless place tight restrictions on religious practices (as in China), while others allow a much wider array of religious liberties (as in the United States). In most cases, civic and/ or religious education in state schools is designed to perpetuate the existing relationship of religion and state, whatever that relationship may be.

This entry focuses on the United States, where the legal, philosophical, and cultural contours of church–state relations are primarily guided by three core principles in the federal constitution: (1) nonestablishment, (2) free exercise, and (3) equal protection. After a brief prelude in constitutional history, these core principles are examined in light of their legal application to public and private education.

Constitutional Development

During the tumultuous 15 years after declaring independence in 1776, Americans fought a revolutionary war (1776–1783), ratified 13 state constitutions, and created two national governments, the first of which, outlined in the Articles of Confederation, lasted only eight years (1781–1789). Constant debate during this period about the form of government best suited to a free people eventually led to the ratification of the federal Constitution (1789) and Bill of Rights (1791), which set in motion the first secular nation-state, a country without an established religion.

Though the Declaration of Independence, written primarily by Thomas Jefferson, offers no legal framework or systematic theory of church and state, it nonetheless posits a particular relationship between religion and government. According to this view, "unalienable" human rights are "endowed by their Creator," but governments are nonetheless human institutions whose authority and power are derived from "the consent of the governed" themselves, not from God. The latter concept is known as "popular sovereignty," which President Abraham Lincoln would famously describe nearly 100 years later as "government of the people, by the people and for the people."

If the Declaration promises liberal democracy and popular sovereignty, the Constitution and its Bill of Rights attempt to actualize that promise. Essential to that promise is the First Amendment, which reads in its entirety, "Congress shall make no law respecting an establishment of religion, nor prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances." The first 16 words, known as the religion clauses, provided the legal framework for religious freedom in the United States by preventing the new federal government from establishing a national religion and by protecting the right of citizens to follow any religion they chose (or none at all).

Several U.S. states retained their religious establishments well into the 19th century; Massachusetts was the last to disestablish, in 1833. This was possible because, on its face, the First Amendment merely bans Congress from making a law "respecting an establishment of religion," and so on; states were free to enhance or abridge the rights named in the Bill of Rights because American citizenship was granted through the states, not the federal government. The Fourteenth Amendment, ratified in 1868, federalized citizenship to grant civil and political rights to former slaves. Since the 1940s, the U.S. Supreme Court has interpreted the Fourteenth Amendment as a guarantee to all persons of the rights enumerated in the federal Constitution and its amendments, so that the First Amendment's establishment clause applies to all officials in all branches of all levels of government, and its free exercise clause applies to all persons living in the United States.

The two religion clauses are related but distinct from one another, and the modern Supreme Court has built separate fields of jurisprudence around each of them. The establishment clause prohibits the government from discriminating in favor of religious beliefs or practices by adopting or endorsing them through its laws or the actions of its employees; the free exercise clause prohibits the government from

discriminating against the religious beliefs or practices of individuals and organizations. The principles are complementary in that nonestablishment applies to government action while free exercise applies to private action. But they are also in tension because an expansive interpretation of one clause often requires a restrained interpretation of the other. For example, allowing the widest range of religious practices (strong free exercise) might require special accommodations for religious people that are not granted to nonreligious people (a position contrary to the strong nonestablishment provisions).

Because the Supreme Court is the final interpreter of Constitutional rights that affect all citizens, its decisions can have enormous social and legal consequences, especially in the realm of education, where establishment and free exercise cases are common. In fact, the legal scholar John Witte has found that a third of the Court's nearly 200 cases on religious freedom since 1817 have dealt with religion and education. Most cases focus on establishment questions regarding religions in public schools, but there are also crucial cases regarding the free exercise rights of teachers and students in public schools and the role of government in religious schools.

Religious Freedom and Public Schools

Given the combination of compulsory education laws and impressionable young students, the legal system takes special care to prevent public schools from endorsing or sponsoring religious perspectives or practices. In two landmark cases that still generate controversy today, the Supreme Court outlawed teacher-led prayers in *Engel v. Vitale* (1962) and teacher-led devotional Bible reading in *Abington v. Schempp* (1963), arguing in both cases that these common practices were clear examples of the state promoting a particular form of religion. The same principle of nonestablishment was applied in the Court's later decisions banning mandatory moments of silence and classroom postings of the Ten Commandments. The Court has also ruled that public schools violate the establishment clause when they invite or allow public prayers or other religious messages during graduation ceremonies, general assemblies, or sporting events—even if the prayers are student led—under the reasoning that students in attendance are coerced into hearing religious messages that they may reasonably infer are endorsed by the state.

The public school curriculum provides another controversial area. Here, a relatively consistent case law has developed that upholds the right of public schools to teach about religions in ways that do not indoctrinate or proselytize but rejects the teaching of religion as scientifically valid. In 1963, the Court noted that teaching about religions in public schools was not only permissible but advisable. "It might well be said," wrote Justice Tom Clark for the Court, that

> one's education is not complete without a study of comparative religion or the history of religion and its relationship to the advancement of civilization. . . . Nothing we have said here indicates that such study of the Bible or of religion, when presented objectively as part of a secular program of education, may not be effected consistently with the First Amendment.

The Court has, however, strongly rebuked schools that present religious views as scientifically valid, as when intelligent design or creation science is taught in biology or when teachers are not allowed to teach evolution. In each case, the Court ruled such activities to be unconstitutional establishment of religion.

Crucial religious freedom concerns also arise from the free exercise rights of students and teachers. Public school students are not bound by the establishment clause, and the Court has ruled that they carry substantial free exercise rights with them so long as their exercise of those rights does not distract from the central educational mission of the school. For example, students may wear clothing with religious messages but not when those messages are hateful; students may be punished for promoting drug use, even if they couch the activity in religious terms. Students are free to read the Bible and pray at school, alone or in groups, as long as the practice is not disruptive to academic work and is not initiated or led by teachers or administrators who, as agents of the state, have limited religious freedom rights at school.

In the past 30 years, the Supreme Court has opened and protected a new avenue for the religious freedom claims of private citizens and organizations based on the Fourteenth Amendment's guarantee of equal protection under the law. In several landmark cases, the Court has ruled that if public universities, secondary schools, or primary schools offer project funding or open their facilities after school hours to nonreligious community groups, religious groups must have equal access.

Religious exemptions pose significant challenges to contemporary legal and educational theory

because they pit free exercise claims against values of nonestablishment and equal treatment. Treating all people equally may actually punish one group more than another, as when a school's ban on hats forces Sikh men and veiled Muslim women to choose between important symbols of their faith or their education. Should some religious practices deserve special exemptions? If so, how should we decide which exemptions are valid or desirable? In 1972, the Supreme Court famously ruled in *Wisconsin v. Yoder* that the Amish community's need to sustain its agricultural way of life provided sufficient religious warrant to exempt their children from compulsory education after the eighth grade. A series of Court decisions and congressional laws beginning with *Employment Division v. Smith* (1990) narrowed, widened, then narrowed again the ability of religious people to claim exemptions from generally applicable law. This remains an active area of First Amendment jurisprudence.

Government Involvement in Religious Schools

If the preponderance of church/state controversies falls on the public schools, private religious schools are also the subject of robust constitutional questions. In the past three decades, the Supreme Court has opened the door to extensive public financial support for religious schools under the principle of equal treatment. It has affirmed the use of publicly funded tuition vouchers to pay for education at religious schools in lieu of public schooling; the state's purchase of computers for religious schools; the use of public funds for remedial education, sign language interpreters, and other services at religious schools and colleges; and the granting of tax deductions to parents who pay private school tuition and other educational expenses. In each case, the state program in question was deemed to provide a benefit or service that was neutral with respect to religion because it was provided to a broad class of citizens defined without reference to religion. Though in effect these laws provide benefits to religious persons or institutions—at times, almost exclusively so—the Court found that their intent was not discriminatory, and thus the benefits passed constitutional muster.

Erik Owens

See also Legal Decisions Affecting Education; Religious Education and Spirituality; Religious Symbols and Clothing; Rights: Children, Parents, and Community

Further Readings

Greenawalt, K. (2004). *Does God belong in public schools?* Princeton, NJ: Princeton University Press.

Hamburger, P. (2002). *Separation of church and state.* Cambridge, MA: Harvard University Press.

Owens, E. (2007). Separation of church and state. In *The Boisi Center Papers on Religion in the United States* (Vol. 4). Retrieved from http://bit.ly/16u6IDQ

Witte, J., Jr. (2010). *Religion and the American constitutional experiment: Essential rights and liberties* (3rd ed.). Boulder, CO: Westview Press.

U.S. Supreme Court Cases on Church and State

Agostini v. Felton, 521 U.S. 203 (1997).
    The Court's decision in this case explicitly abrogated its earlier Aguilar v. Felton *(1985) opinion that providing on-site services at sectarian schools was not in keeping with the separation of church and state doctrine. In its ruling, the Court acknowledged that not all government aid that directly affects religiously affiliated schools is forbidden.*

Employment Division, Department of Human Services of Oregon v. Smith, 494 U.S. 872 (1990).
    The Supreme Court ruled that their religious beliefs do not necessarily exempt people from compliance with neutral, generally applicable laws.

Engel v. Vitale, 370 U.S. 421 (1962).
    The Court held that the Establishment Clause precluded the recitation of state-authored prayers in public schools.

Everson v. Board of Education of Ewing Township, 330 U.S. 1 (1947).
    The Supreme Court applied the Establishment Clause to the states for the first time in a case involving education, allowing state provision of transportation for parochial school students.

Good News Club v. Milford Central School, 21 F. Supp.2d 147 (N.D.N.Y. 1998) *aff'd*, 202 F3d 502 (2d Cir. 2000); 533 U.S. 98 (2001).
    The Supreme Court ruled that a religious group could not be denied the use of a public school's facilities after school hours if the facilities were available to other groups promoting similar issues, namely, the moral and character development of children.

Lamb's Chapel v. Center Moriches Union Free School District, 508 U.S. 384 (1993).
    The Supreme Court ruled that a school board's denial of school facility use to a religious group violated the group's First Amendment guarantee to free speech.

Lemon v. Kurtzman, 403 U.S. 602 (1971).
    Lemon v. Kurtzman *or "Lemon I," is best known for its three-part test, which the Supreme Court created to be*

used in evaluating whether government action violates the Establishment Clause; this provision prohibits the government from making laws "respecting an establishment of religion." The three parts of the "Lemon test" are that (1) a statute or program must have a secular legislative purpose, (2) its principal or primary effect must be one that neither advances nor inhibits religion, and (3) it must not foster excessive government entanglement with religion.

Mitchell v. Helms, 530 U.S. 793 (2000).

The Supreme Court held that a federal program that loaned instructional materials and equipment to schools, including those that were religiously affiliated, was permissible under the Establishment Clause of the First Amendment of the U.S. Constitution.

School District of Abington Township v. Schempp, 374 U.S. 203 (1963).

In a landmark judgment, the Court held that public schools cannot require devotional Bible reading or collective spoken prayers, even if parents may exempt their children, because these activities are essentially religious ceremonies in violation of the Establishment Clause. The Court affirmed, however, the study of religion and the Bible in public schools "when presented objectively as part of a secular program of education."

Wisconsin v. Yoder, 406 U.S. 205 (1972)

Wisconsin v. Yoder upheld the Fourteenth Amendment right of parents to direct the education of their children.

Zelman v. Simmons-Harris, 536 U.S. 639 (2002).

The Supreme Court upheld the constitutionality of a program from Ohio that provided educational vouchers for children from poor families, because it offered aid pursuant to neutral secular criteria that neither favored nor disfavored religion, was available to religious and secular beneficiaries, and was available to parents based on their own independent, private choices.

CICERO

The Roman statesman Marcus Tullius Cicero (106–43 BCE) was considered one of the greatest orators of antiquity, and his writing—on rhetorical theory, government, ethics, philosophy, law, and other topics—remains influential today. Cicero was a politician who put his ideas into practice, but he also wrote extensively about his theories. Much of his writing survives, including hundreds of letters, dozens of speeches, and several treatises on a variety of topics. Among the more noteworthy of his surviving texts is *De oratore*, or *On the Orator*, in which he argues that an ideal orator

is master of all communication, written and oral. Cicero synthesized rhetoric and philosophy, arguing that the ideal orator—whether communicating via speaking or writing—needed to be knowledgeable about various subjects, including law, history, and philosophy. Cicero's *De oratore* and other works were influential not only among educators in Rome, such as Quintilian, but also throughout history, notably during the Renaissance. His writings on political theory influenced the founding fathers of the United States and the leaders of the French Revolution. His impact on prose style and political thinking can be felt today.

Oratory in Practice

Cicero was born into the equestrian order (the upper middle class) during a time in which statesmen typically came from the patrician order (or aristocracy). It was possible, however, for a nonpatrician to rise high politically, which Cicero did by first developing a reputation as an eloquent speaker in the courts before winning elections to several offices. He achieved the highest office possible, that of consul (comparable to the U.S. president), in 63 BCE, and he remained an influential senator afterward. He lived during a volatile political time in which the democratic Republic was losing power.

Cicero opposed the dictatorship of Julius Caesar, but he was not asked to participate in Caesar's assassination and was not present when it took place in the Senate chambers in 44 BCE. Afterward, Cicero publicly derided Mark Antony, who seemed likely to follow in Caesar's footsteps. He supported Octavian, Caesar's named successor, in the hope that the young man would leave governing to the elected representatives. In the wake of Caesar's death, a series of civil wars occurred as different factions vied for power. During a short-lived truce, Antony convinced Octavian to have Cicero killed. The elder statesman was slain while fleeing the country. It was reported that his head and hands, which had spoken and written such powerful rhetoric, were severed and nailed on display in Rome. Cicero's death has been seen as symbolic, signifying the death of the kind of active, public rhetoric that he promoted. His assassination showed how powerful his words had been but also how powerless public speech was in this new Roman society. Octavian eventually arose from the fighting to become the first emperor of Rome, taking the name Augustus. In his ensuing reign, and the subsequent

reigns of his successors, citizens of Rome were afraid to speak on political issues and participate in public life the way Cicero had.

Rhetorical Theory

Cicero wrote extensively throughout his life. One of his earliest works, titled *De inventio*, or *On Invention*, discussed invention, the first of the five rhetorical canons. As a schoolboy, he would have been educated in all the five canons—(1) *inventio* ("invention"), (2) *dispositio* ("arrangement"), (3) *elocutio* ("style"), (4) *memoria* ("memory"), and (5) *pronuntiatio* ("delivery")—considered necessary for producing a great speech. *De inventio* was possibly Cicero's first attempt at writing about all the five canons; however, either he did not finish the others or they have been lost. Cicero was probably no more than 20 years old when he wrote *De inventio*; it remains noteworthy primarily because of its contrast with *De oratore*, which he wrote some 30 years later, after a successful political career. In style, *De inventio* reads like a textbook for orators speaking in court. Cicero pedantically presents the information but struggles to synthesize the various points of view. Cicero himself later criticized *De inventio* as a youthful writing exercise. Nevertheless, *De inventio* provides insight into Roman rhetorical education in that time period.

De oratore, on the other hand, provides a richer, more eloquent examination of rhetoric and oratory. While *De inventio* was written like an education manual, which was a common format at the time, Cicero chose to break from this trend, modeling *De oratore* after the Greek dialogues. In the vein of Plato's *Gorgias* or *Phaedrus, De oratore*, which is much longer than the Platonic dialogues, consists of a series of fictional conversations between preeminent Roman orators, historical figures from Cicero's youth. By using representations of well-known orators, Cicero was able to provide a theoretical discussion of rhetoric.

Similar to the way Plato represented Socrates, Cicero used the character of Crassus, a former consul who had actually tutored Cicero, as the primary means to express his own point of view. However, Cicero does not entirely disagree with Antonius, the other main character; and furthermore, the participants in the debate modify and amend their perspectives. The dialogues then offer a demonstration of the varying ideals of rhetoric from the time period, but the work as a whole also provides an illustration of effective communication leading to more developed thinking. Because of its structure and style, *De oratore* does not provide a concise thesis regarding Cicero's rhetorical theory. Rather, the discussion implies the flavor of Cicero's perspective of rhetoric. Through *De oratore*, Cicero paints the picture of the ideal orator as someone who achieves excellence in oratory through the study of philosophy and rhetoric. He noted that wit, humor, and psychological insight were important to move an audience to a particular emotion. An orator must be able to adapt his rhetorical style to different occasions or audiences. Moreover, the orator must feel the same emotions that he is trying to arouse in a particular audience.

While Cicero's discussion of rhetoric emphasized oratory, this was a product of Roman society and should not be seen as a preference over writing. Decision making in Rome, whether in a courtroom or in the senate, happened predominantly through verbal public discourse. Written texts, though not necessarily scarce for educated citizens, were certainly rarer than the mass-produced print and digital texts saturating the modern world. Nevertheless, Cicero thought that an orator should be eloquent regardless of the mode of delivery, and his own written treatises and spoken speeches demonstrated that the ideal he argued for could be achieved.

One of the reasons for Cicero's continuing relevance is his discussion of rhetoric, as modern scholars do not treat it simply in terms of oratory but apply it in broader ways. Just as the five canons have been adapted to apply to written and electronic communication, Cicero's discussions of oratory remain relevant to rhetoric in various forms. Considerations of audience, style, arrangement, the rhetorical canons, and even wit and humor remain pertinent to communication in varying contexts, even if society no longer places as much importance on oratory.

Andrew Bourelle

See also Aristotle; Augustine; Isocrates; Plato; Quintilian; Rhetorical Canons; Socrates and Socratic Dialogue; Sophists

Further Readings

Clarke, M. L. (1996). *Rhetoric at Rome: A historical survey* (3rd ed.). New York, NY: Routledge.

May, J. M., & Wisse, J. (Eds. & Trans.). (2001). *Cicero: On the ideal orator*. New York, NY: Oxford University Press.

Murphy, J. J. (Ed.). (2012). *A short history of writing instruction: From ancient Greece to contemporary America* (3rd ed.). New York, NY: Routledge.

Ochs, D. J. (1994). Cicero's rhetorical theory. With a synopsis of Cicero's rhetorical works. In J. J. Murphy & R. A. Katula (Eds.), *A synoptic history of classical rhetoric* (2nd ed., pp. 129–176). Davis, CA: Hermagoras.

CITIZENSHIP AND CIVIC EDUCATION

Citizenship has a number of different potential meanings, ranging from a person's legal status within a country to his or her civil, political, or social standing within a community, to the set of behaviors that represent a particular ideal of civic virtue. Civic education is hence an equally broad concept. It can cover solely the specific rights and duties of legal citizens, but usually it is used more capaciously to indicate the knowledge, skills, and attitudes that children are expected to learn to be virtuous and civically productive members of society. Citizenship and civic education are key concepts in the philosophy of education because their meanings, aims, and practices are so contested, both among philosophers and among actors on the ground, such as parents, educators, politicians, students, and members of diverse cultural groups. This entry begins by addressing different conceptions of citizenship, including the emerging concepts of digital and global citizenship. It then transitions to the relationship between citizenship and civic education, explaining why civic education is needed and how its aims and functions vary in relation to a country's form of government. Given democracy's global ascendancy, the bulk of the entry discusses why even within democratic contexts there is significant contestation over civic education's purposes and practices. The entry ends by clarifying that civic education takes place in multiple settings, not just schools, although schools do pose particularly interesting challenges to philosophers of education.

What Does It Mean to Be a Citizen?

At its most basic level, citizenship refers to the legal status enjoyed by full members of a state (meaning a self-governing country). Citizens have rights and privileges accorded or protected by the state, as well as duties toward the state. These duties almost always entail paying taxes and following the laws; they may also include serving on a jury, voting, serving in the military, attending church, reporting suspected subversives, or attending rallies, among many other possibilities. Rights and privileges are equally variable, depending on the state's form of government and political traditions. They may include rights or privileges to vote, to be protected from physical attack, to earn a living wage, to speak freely, to attend school, to run for office, to obtain a passport, to practice one's religion, or to travel. Even in democracies, however, not all citizens necessarily share the same rights, duties, or privileges. Before 1971, for example, female citizens of Switzerland did not enjoy the same right to vote in federal elections as male citizens had. Currently, male citizens have the duty in the United States to register for Selective Service, whereas female citizens do not. Gay citizens in most countries do not enjoy the privilege of marrying a same-sex partner. So citizenship is a shared legal status to some extent, but one that may vary depending on individual citizens' identities. At the same time, a number of rights, duties, and privileges are also enjoyed by noncitizens who live within a state. For example, in most states noncitizens are obligated to pay taxes, are provided some social services, and have similar rights to free expression or free assembly as citizens possess. Noncitizens sometimes even have the right to vote.

When philosophers and educators address citizenship or civic education, therefore, they often think of themselves as referring to the identities, rights, and obligations of the residents of a country in general, rather than solely those of legal citizens. It can be helpful to think in terms of the three forms of citizenship—civil, political, and social—distinguished by the sociologist T. H. Marshall. He used this distinction to analyze how citizens' rights have changed over time, but these three forms are equally useful for understanding how citizenship itself is a multidimensional concept, not merely a political status. "Good citizenship" is similarly taken to refer to a broader set of virtues than those characteristic merely of legal citizenship. Civic virtue may be seen in a person's helping out an ailing neighbor or in people working with multinational organizations to improve economic conditions or end child slavery. In this respect, citizenship is sometimes treated as a way of being in the world—of being attentive to the common good or doing one's part—rather than as a way to distinguish a set of people from others on status-dependent grounds.

New forms of citizenship are also coming to the fore that are not connected to state membership or residence. One is the "digital citizen," sometimes referred to as the "netizen." Digital citizenship can refer to how people work through the World Wide Web, across geographic boundaries, to identify injustices or solve problems together. The use of Twitter during the Arab Spring in 2011 was one prominent instance of digital citizenship. Digital citizenship may also refer to the use of digital tools, such as online petitions or automatic data aggregators, to conduct civic and political action solely online. It also increasingly refers to citizens' roles as media producers rather than solely consumers; digital citizens contribute to the creation and dissemination of civic knowledge through posting blogs, videos, and other resources. Or netizens may enact digital citizenship by fighting against Internet trolls and socializing new members into a network. Just as the digital space is in flux, so too is digital citizenship; one can predict, however, that it will be an ever more prominent component of both philosophy and education about citizenship.

A second category of citizenship that transcends state boundaries includes transnational, global, and cosmopolitan citizenship. Transnational citizens have political roots in two or more states, thanks to immigration, refugee status, intermarriage, or other life experiences. They identify with multiple countries. Advocates of global citizenship, by contrast, often deny that they—or anyone—should identify with *any* country; rather, they embrace a vision of citizenship that links all human beings in a collective search for solutions to global problems like climate change or economic inequality. They also embrace a globalized conception of human rights and obligations, rather than one that is state specific. Cosmopolitan citizens may (or may not) also disavow allegiance to any particular country, but this tends to be because they feel connected to many countries and cultures as a result of multicultural production and consumption, work, travel, or the cosmopolitan character of where they live. Thanks to these experiences, the philosopher Kwame Anthony Appiah argues, cosmopolitan citizens embrace the value of pluralism, even if they also hold strong local identities. Martha Nussbaum (2002) pushes the cosmopolitan ideal further toward a global one, arguing that "we should give our first allegiance to no mere form of government, no temporal power, but to the moral community made up by the humanity of all human beings" (p. 7). Cosmopolitan citizenship is often contrasted with patriotic citizenship, a commitment to "my country, right or wrong."

Why Is Civic Education Necessary?

There are two primary reasons why civic education is necessary. First, and perhaps of primary importance for those who do not want to sink into a state of nature (in which life is likely to become "nasty, brutish, and short," as Thomas Hobbes so memorably put it), civic education of some sort is necessary to perpetuate the state itself. No government is intrinsically self-perpetuating, as there is no reason to think that human beings born under any particular government will naturally come to develop the knowledge, skills, and dispositions to maintain it. In the case of an unjust or illegitimate state, civic education may be needed especially to convince or compel its subjects to remain in its thrall. Such an education might play primarily on fear: of a dangerous "other," of social collapse in the absence of the state, or of the state's power to inflict harm on dissenters. In this respect, illegitimate states may also use civic education as a means of maintaining privilege for those in power, and to either justify or obscure the disempowerment of others. A just and legitimate state, however, also needs civic education for its perpetuation. As will be addressed below, citizens in just and legitimate states tend to have many rights and duties. It takes a great deal of work to learn how, when, and why to exercise one's own rights and duties, as well as to respect those of others. To the extent that ordinary citizens are also involved in governing—as they are in a democracy "of the people, by the people, and for the people"—civic education is necessary to teach citizens how to lead.

Second, civic education is necessary to realize the civic ideals of the state, which is different from perpetuating the state itself. Civic ideals that identify the appropriate kinds of relationships among citizens—whether those are of equality, natural hierarchy, mutual respect, shared adoration for the fatherland, mutual noninterference, or common national identity—are achieved only to the extent that citizens internalize and act on these ideals. Civic education is necessary for this internalization and action. Related to this, some thinkers also view civic education as essential for helping people become their ideal selves, insofar as they view civic life as essential to living a good life. Aristotle, for example, declared in Book One, Part II of his *Politics* that "man is by nature a political animal. And he who by

nature and not by mere accident is without a state, is either a bad man or above humanity." This perspective that civic engagement is central to the good life is one that has been developed especially by advocates of civic republicanism, including Niccolò Machiavelli, Montesquieu, and Hannah Arendt.

Civic education is also arguably necessary regardless of state interests. As young people learn to navigate digital citizenship, for example, they may well need guidance about how to do so responsibly, constructively, and safely. Many adults and children alike are concerned about online bullying, for example. Navigating the many different online publics with their own echo chambers of ideas and even simply distinguishing fact from opinion from falsehood when using unmediated digital sources also are skills the development of which may require civic education. Advocates of cosmopolitan or global citizenship also tend to see civic education as being essential to help develop broad-minded, mutually respectful citizens of the world. It also takes a great deal of effort to work across cultural, linguistic, or geographic boundaries to solve problems of collective concern. This kind of practice is an essential component of civic education for global citizenship.

What Are the Goals of Civic Education in a Democracy?

As the sections above have suggested, civic education may have many different goals, depending on the civic institutions that it is intended to serve. Because the majority of countries in the world are democratic in at least some respects however, and because much of the philosophy of education that addresses civic education presumes a democratic context, it is especially important to consider the goals of civic education in a democracy.

To begin with, it is important to acknowledge that many components of a democratic civic education may also be attractive to authoritarians or even tyrants. For example, teaching respect for the law, honesty, literacy, and willingness to sacrifice for the greater good may be essential goals of an effective civic education in either a democracy or an autocracy. On the other hand, some knowledge, skills, and attitudes seem more particular to democracies. The capacity for self-rule, for example, is by definition central to democracy—the original Greek term means "rule by the people." Other aims of democratic civic education might include the development of mutual toleration and respect, commitment to

freedom of speech and other core democratic rights and values, acknowledgment of the legitimacy of democratically achieved decisions even if one is on the losing side, the capacity and inclination to deliberate with diverse others, and the ability to recognize and elect good political leaders.

To some extent, which of these aims rises to the fore depends on one's ideal of democracy itself. For example, the capacities for deliberation with diverse others, on the one hand, and for recognizing and electing good leaders, on the other, echo key tensions among advocates of popular democracy, deliberative democracy, and representative democracy. Depending on one's view about what democracy entails—majority rule, deliberative consensus building, or the election of wise representatives who do the actual governing—a democratic civic education may focus on fairly disparate skills and knowledge. Thomas Jefferson (1818/1856) clearly demonstrates this divide in his proposal for public education. He advocates universal primary education on the grounds that every citizen should learn to be economically self-sufficient, "to understand his duties to his neighbors and country," and "to know his rights; to exercise with order and justice those he retains; to choose with discretion" his representatives, and "to notice their conduct with diligence, with candor, and judgment" (p. 434). He advocates higher education for a much smaller number of students, however, "to form the statesmen, legislators and judges on whom public prosperity and individual happiness are so much to depend" (p. 435). Jefferson's vision of civic education clearly distinguishes between the democratic rulers and the democratically ruled. Thirty years later, the American educator Horace Mann (1846/1891) promoted a very different vision of democratic civic education. He warned,

> In a republican [representative] government, legislators are a mirror reflecting the moral countenance of their constituents. And hence it is, that the establishment of a republican government, without well-appointed and efficient means for the universal education of the people, is the most rash and fool-hardy experiment ever tried by man. . . . It may be an easy thing to make a republic; but it is a very laborious thing to make republicans. (pp. 270–271)

Joseph Kahne and Joel Westheimer (2004) have identified a related division in contemporary civic education among proponents of "personally respon-

sible, participatory, and justice-oriented" citizen-ship (p. 237). They characterize the personally responsible citizen as someone who donates food to a canned food drive, say, while the participatory citizen organizes the food drive. The justice-oriented citizen, in contrast, focuses on addressing the underlying problems of hunger and food scarcity. All three approaches are compatible with democracy, but as Kahne and Westheimer show through both philosophical and empirical analyses, they imply very different agendas for civic education.

To some extent, these differences are rooted in competing civic *identities*. If a person thinks, "As a good citizen, I am someone who . . . ," how should he or she finish the sentence? The debate over patriotic education becomes relevant here. How important is it for someone to declare, "I am proud to be an American [or other nationality]" or "As a good citizen, I am someone who defends my country to the utmost"? Many advocates of patriotic education argue that only such sentiments bind strangers together in a web of reciprocal obligation. Only such sentiments are strong enough to motivate civic engagement and active democratic cooperation in a multicultural context. Others advocate instead that citizens should learn to say, "As a good citizen, I am someone who fights injustice even when that means opposing my own government" or "who defends human rights and battles global climate change." These divisions do not break down neatly along ideological lines. Nonetheless, such disputes raise significant practical challenges for civic educators, who fear teaching a partisan curriculum. Unfortunately, this means that civic education often eschews politics altogether for an anodyne mush of lessons about how a bill becomes a law and controversy-free service learning projects.

Finally, some people question any separation of civic education from the broader educative enterprise. John Dewey (1916/1944) famously characterized democracy as follows: "A democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicated experience" (p. 87). In this respect, education for democracy and education for life are inextricably intertwined. It does not make sense to conceive of one in the absence of the other. Another reason why civic education may be thought to be inseparable from "good education" is that the strongest predictor of adults' civic and political engagement is their number of years of schooling. This finding has held true for a century in virtually every country that has

been studied. Hence, it is possible that civic education understood as education for civic empowerment might best be characterized as high-quality education, period, rather than as specific instruction in the knowledge, skills, and attitudes particular to democratic citizenship.

On the other hand, there is significant evidence of a civic empowerment gap in the United States and other countries between members of historically privileged versus historically disenfranchised groups (Levinson, 2012). One way to address this gap is to work with historically disenfranchised youth to construct an intentionally designed, empowering civic education. Paulo Freire (1970/2008) similarly advocates reshaping education in concert with "the oppressed" to achieve transformative civic ends:

> No pedagogy which is truly liberating can remain distant from the oppressed by treating them as unfortunates and by presenting for their emulation models from among the oppressors. The oppressed must be their own example in the struggle for their redemption. (p. 54)

Where Does Civic Education Take Place?

Civic education takes place throughout society, in public and in private. Civil society is itself educative, through its signs, symbols, and practices. Every coin and bill offers a prominent reminder of the state's civic heroes and values. So, nowadays, do most government websites. Court rooms featuring judges clad in robes and often wigs, police checkpoints, everyday interactions with social service agencies, and the architecture of city halls all teach citizens about the power and nature of the state and where they stand in relation to it—whether for good or ill. Families also engage in civic education, whether intentionally or not. Children are instructed about when and how to speak up and when to keep their heads down and comply with the dictates of others. Some children learn how to exercise leadership in the family or through extracurricular activities. They may learn to debate current events over dinner, accompany their parents to vote on election day, or volunteer at a shelter every month. There is strong evidence that all these kinds of experiences affect the nature, quantity, and quality of their later civic and political engagement as adults. The impact of the family on civic engagement has been recognized for centuries, in fact. Even while women were excluded from most public roles in the United States until the 20th century, for instance, they

were lauded as essential contributors in raising their sons and husbands to support the causes of liberty and democracy.

Just as families and civil society engage in civic education both explicitly and implicitly, so too do schools have multiple ways of providing civic education. The most obvious of these are government, history, and civics courses. There has been an ongoing debate about the impact of such courses. There seems to be good evidence that when these courses are taught very well, including active learning opportunities such as simulations, discussions, and action civics, they can contribute to students' civic knowledge, skills, and engagement. The most important factor is an open classroom climate in which students feel free to express their own opinions and disagree with others in a mutually respectful way. Unfortunately, however, many of these classes feature dry recitations, textbooks, and worksheets that have little demonstrable impact on students' civic learning. As these pedagogical examples suggest, though, schools also provide civic education, whether intentionally or not, more broadly through their overall culture, practices, and pedagogies. Whether or not a student experiences a high-quality civics course, her experiences of participating in student government, feeling respected in the hallway and cafeteria, and being solicited for her opinions in school assemblies can also promote her sense of civic efficacy, membership, and identity. The opposite may also occur in schools that disrespect students or give them few outlets for voice and leadership. As philosophers of education reflect about citizenship and civic education, therefore, this is another realm for productive inquiry.

Meira Levinson

See also Democratic Theory of Education; Dewey, John; Freire, Paulo: *Pedagogy of the Oppressed* and Critical Pedagogy; Hidden Curriculum; Multicultural Citizenship; Patriotism; Values Education

Further Readings

Callan, E. (2004). *Creating citizens: Political education and liberal democracy*. Oxford, England: Clarendon Press.

Dewey, J. (1944). *Democracy and education*. New York, NY: Macmillan. (Original work published 1916)

Freire, P. (2008). *Pedagogy of the oppressed* (M. B. Ramos, Trans.). New York, NY: Continuum. (Original work published 1970)

Gutmann, A. (1987). *Democratic education*. Princeton, NJ: Princeton University Press.

Jefferson, T. (1856). Report of the commissioners appointed to fix the site of the University of Virginia. In N. F. Cabell (Ed.), *Early history of the University of Virginia, as contained in the letters of Thomas Jefferson and Joseph Cabell* (pp. 432–447). Richmond, VA: J. W. Randolph. (Original work published 1818)

Kahne, J., & Westheimer, J. (2004). What kind of citizen? The politics of educating for democracy. *American Educational Research Journal, 41*(2), 237–269.

Kymlicka, W., & Norman, W. (Eds.). (2000). *Citizenship in diverse societies*. Oxford, England: Oxford University Press.

Levinson, M. (2012). *No citizen left behind*. Cambridge, MA: Harvard University Press.

Mann, H. (1891). *Life and works of Horace Mann* (Vol. 4). Boston, MA: Lee & Shepard. (Original work published 1846)

McDonnell, L. M., Timpane, P. M., & Benjamin, R. (Eds.). (2000). *Rediscovering the democratic purposes of education*. Lawrence: University Press of Kansas.

McDonough, K., & Feinberg, W. (Eds.). (2003). *Citizenship and education in liberal-democratic societies: Teaching for cosmopolitan values and collective identities*. Oxford, England: Oxford University Press.

Nussbaum, M. C. (2002). *For love of country?* Boston, MA: Beacon Press.

Code Theory: Basil Bernstein

Basil Bernstein (1924–2000) was a North London schoolteacher turned sociologist of education, appointed to the Karl Mannheim Chair of Sociology of Education at the Institute of Education at the University of London. From the 1960s on, he sought to describe the principles underlying the perpetuation and change of class relations by the family and the school. In a series of five volumes, collectively titled *Class, Codes and Control*, he progressively developed his theory in dialogue with the work of his students. A theory of the code is central to this work. This entry discusses the development of code theory and Bernstein's ideas about sociolinguistic and educational codes.

A *code* in common usage is a covert translation or regulation device linking features in two different contexts. "Cracking the code" entails making visible the principles of the translation device so that one is able to "read" the features of one context in terms of the features of the other. The "genetic code," for example, allows one to read the relation between personal attributes and one's genetic inheritance. To

grasp what is translated or regulated by Bernstein's educational code, three of Bernstein's intellectual forebears merit a brief comment.

After the anthropologist Mary Douglas, an ardent admirer, Bernstein was the most important Durkheimian scholar to come from England. He shared Émile Durkheim's project of understanding how macrosocial relations—the division of labor—both shaped and were shaped by symbolic cultural forms and forms of consciousness through the institutions of the church, family, and school. Bernstein also became steeped in the structuralist and poststructuralist European intellectual currents of the 1960s and 1970s, sharing with them a desire to render legible the invisible social pattern and an inclination to abstraction and formalism, which some readers found off-putting. Paul Atkinson has pointed to the influence of Ferdinand de Saussure, but one could equally point to Noam Chomsky, Jean Piaget, A. R. Luria, and Lev Vygotsky, and also to his intellectual comrade, the linguist Michael Halliday. To conclude that Bernstein was therefore a "structuralist," as many have done, is erroneous. He was also influenced by symbolic interactionism, and in common with the sociologies of his time, his aim was to give an account of the principles of the code in terms of both the structural dimension (hence "class") and the interactional or communication dimension (hence "control").

There are two principal phases of the development of code theory, the first concentrating on the principles of communication generating different "orientations to meaning" (or different sociolinguistic codes) in young children, the second broadening the theory to account for educational communication in general. In the latter development, the theory is refined to show how coding principles vary and how these variations can be formally modeled.

Sociolinguistic Codes

Why, asked Bernstein in 1960s England, was working-class schooling failure so intractable? Which mechanism of mass schooling reproduced the division of labor and the hierarchy between mental and manual labor so remorselessly? How did the class position of parents become transmuted into a cognitive orientation that favored middle-class children and disadvantaged those from working-class homes?

Through a series of ingenious studies, Bernstein identified two critical nodes. The first was the form of socialization in the family, in particular the way parents exercised authority. Bernstein distinguished between modes of parental control. Middle-class socialization relations were predominantly *personal*—where the control was filtered through reason and discursive elaboration ("Why do good children not hit the cat?"); working-class relations were predominantly *imperative*—where the control was more directly exercised through commands and injunctions ("Because I said so"). These socialization styles engendered distinct "habits of meaning," identified through speech repertoires. The imperative mode generated a *restricted code* or orientation to meaning—particularistic, context dependent, more concrete; the personal mode generated an *elaborated code*—universalistic, context independent, more abstract.

Bernstein's point was to show that middle-class socialization, which matched the orientation of the school, gave middle-class children a head start, while working-class children, with their coding mismatch, still had to learn the orientation and associated semantic forms the school assumed had been already learned. The head start was given by the properties of the code, which allowed middle-class children to recognize the task requirements of elaborated discourse at school (possession of the recognition rule) and allowed them to produce a legitimate text or performance (possession of the realization rule). For example, when Lesley Lineker (1977) asked children to explain how to play hide-and-go-seek, middle-class children tended to describe the rules of the game, while working-class children described their particular personal experiences.

The term *restricted* proved to be most unfortunate and was taken by sociolinguists like William Labov to be referring to a deficient dialect rather than a different semantic style, something Labov regarded as a cultural insult. It took a great effort of clarification from Bernstein before Labov was ultimately persuaded, by which time irreparable damage had been done to the theory of sociolinguistic codes.

Educational Codes

So far then, Bernstein had established that it was the possession of a matching coding orientation, tacitly acquired at home, that enabled middle-class children to select and integrate the required meanings and forms of their realization for success at school. He next turned his attention to the modalities of the elaborated code of the school itself, refining his theory to express the axes of variation of the

two principal dimensions of the elaborated code, the *structural* dimension and the *interactional* dimension. From Durkheim, he adopted the term *classification* to denote the degree to which categories of agents, school subjects, and spaces should be kept apart (strong classification) or integrated together; and from Erving Goffman, he adopted the term *framing* to denote the degree to which the communication relations were controlled by the teacher (strong framing) or allowed for apparent control by the children (weak framing). Strength of classification thus regulated the dimension of power; strength of framing regulated the dimension of control. Together, classification and framing values provide the grammar of the educational code—how the principles of power (class) and control are translated in the teaching context into forms of learner consciousness.

In his early work, Bernstein distinguished between strongly classified and framed curricula, which he called collection code or closed curricula, and weakly classified and framed curricula—integrated code or open curricula. Similarly, he distinguished between strongly classified and framed pedagogy—which he called visible pedagogy—and weakly classified and framed pedagogy—invisible pedagogy. In this latter analysis, strong coding values emphasize clarity of expectations and hierarchical differences—between teachers and learners and in the relative performance of learners—while weak coding values foreground the capacities and predispositions of learners and background both hierarchy and expectations.

Two developments characterize his later work. First, the concept of framing has been considerably elaborated. Following Durkheim and Talcott Parsons, Bernstein distinguished between two dimensions of the communicative relationship: (1) a moral or expressive dimension, akin to school climate, which Bernstein called the *regulative discourse* and which was principally exhibited in the way the school was run—more or less strictly—and (2) an instrumental dimension, called *instructional discourse*. The code of instructional discourse—control over transmission of content—determines whether the selection of learning material, its sequencing, its pacing, and its evaluation are strongly controlled or not. The second elaboration is that classification and framing have been allowed to vary independently, which has allowed for a broader number of pedagogical possibilities and has allowed researchers to inquire into the most appropriate combination for learners from different, especially poor and disadvantaged, backgrounds.

The most comprehensive investigation into this feature has come from the work of the Sociological Studies of the Classroom group at the University of Lisbon, led by Ana Morais. They have been able to show that *strong framing* over external content selection and over the evaluative criteria (which signal the performance expectations of the curriculum), together with *weak framing* over pacing (to allow different learners time to catch up) and over teacher–pupil relations (which allows teachers to individualize the teaching), works best for students from both the middle and the working class. Of these, making the evaluative criteria explicit is the most critical. This means telling children unambiguously what is expected of them and what is missing from their answers, and clarifying concepts. This "mixed pedagogy" has been empirically supported by work done in the United States, South Africa, and Australia. The great virtue of this refinement of educational code theory is that it breaks from the hoary ideological polarities of learner-centered versus traditional or back-to-basics pedagogies and allows for precision in stipulating the coding values that offer the best access to school knowledge for disadvantaged children.

Johan Muller

See also Achievement Gap; Social Class; Socialization

Further Readings

Atkinson, P. (1995). From structuralism to discourse: Bernstein's structuralism. In A. Sadovnik (Ed.), *Knowledge and pedagogy: The sociology of Basil Bernstein* (pp. 83–95). Norwood, NJ: Ablex.

Bernstein, B. (1981). Codes, modalities and the process of cultural reproduction: A model. *Language in Society, 10*(3), 327–363.

Lineker, L. (1977). The instructional context. In D. Adlam, G. Turner, & L. Lineker (Eds.), *Code in context* (pp. 86–125). London, England: Routledge.

Morais, A. (2002). Bernstein at the micro level of the classroom. *British Journal of Sociology of Education, 23*(4), 559–569.

Cognitive Load Theory and Learning

Cognitive load theory uses knowledge of human cognitive architecture to generate instructional

procedures. In turn, the structure of human cognitive architecture is based on biological, evolutionary principles. This entry discusses how the principles of natural information processing systems apply to biological evolution and human cognition and what techniques can be used to reduce working memory load and facilitate the transfer of information to long-term memory.

The categorization of knowledge is an important facet of human cognitive architecture. David Geary distinguishes between biologically primary and secondary knowledge. We have evolved to acquire various modules of biologically primary knowledge automatically and without conscious effort or explicit tuition over countless generations. Examples are learning to listen to and speak a first language, recognizing faces, and learning to use a general problem-solving strategy.

Biologically secondary knowledge is knowledge that we have not specifically evolved to acquire but that has become important for cultural reasons. It is not acquired automatically or unconsciously and is best learned with the assistance of explicit instruction. We invented schools and other educational institutions to teach societally important, biologically secondary, knowledge that otherwise is unlikely to be learned. For example, we can learn to listen and speak without tuition but are unlikely to learn to read and write without explicit instruction. The bulk of the curricula taught in educational institutions fall into the category of biologically secondary knowledge.

Cognitive load theory uses the human cognitive architecture associated with the acquisition of biologically secondary knowledge. Secondary knowledge is processed in a manner analogous to the manner in which biological evolution processes information. The suggestion that evolutionary biology may provide an analog for human cognition has a long history stretching back to Charles Darwin and, more recently, Karl Popper. Both human cognition and biological evolution can be characterized as natural information processing systems.

Principles of Natural Information Processing Systems

There are many ways of describing natural information processing systems. Within a cognitive load theory context, they are most commonly described using five basic principles.

The *information store principle* states that natural information processing systems rely on a very large store of information to enable them to function in a natural environment. A genome provides that role for biological evolution, while long-term memory has an equivalent role in human cognition.

The *borrowing and reorganizing principle* explains how natural information processing systems are able to rapidly acquire their large information stores. During reproduction, information is borrowed from ancestors, with some reorganization of that information during sexual reproduction. Similarly, the bulk of the information stored in human long-term memory is obtained and reorganized by imitating what other people do, listening to what they say, and reading what they write.

While most of the information in an information store is borrowed, it must at some point be created. The *randomness as genesis principle* explains how information is initially created. Random mutation, a process of randomly generating new information and testing its effectiveness, provides the initial creativity engine of evolutionary biology. Analogously, in human cognition, random generation and test during problem solving provide the basic machinery for creativity. No other basic creativity mechanism has been identified.

Random generation has a critical structural consequence indicated by the *narrow limits of change principle.* If novel information must be generated randomly, the system needs a structure to reduce the impact of combinatorial explosions. A very limited-capacity working memory determines which elements will be processed and ensures that humans only process three or four novel elements at any given time. The epigenetic system plays a similar role in evolutionary biology by increasing or decreasing the probability of the relatively rare mutations at particular genetic locations.

Last, the *environmental organizing and linking principle* provides the ultimate justification for a natural information processing system by allowing appropriate actions in specific environments. When dealing with organized information stored in long-term memory, the limitations of working memory disappear, with no known limit to the amount of information from long-term memory that working memory can process. With appropriate information stored in long-term memory in conjunction with environmental triggers, human performance is transformed. Similarly, depending on environmental factors, the epigenetic system can transform the function of the massive store of information held by the genetic system. For example, despite having

identical genetic material, a skin cell has vastly different structural and functional characteristics compared with a liver cell.

Techniques to Reduce Working Memory Load

Cognitive load theory uses this cognitive architecture as a base. The theory is primarily concerned with techniques, some of which are outlined below, to reduce extraneous or unnecessary working memory load in order to facilitate the transfer of information from working to long-term memory for later use.

The *worked example* effect occurs when studying worked examples results in better problem-solving performance than solving the equivalent problems. Searching for a problem solution exerts a heavy extraneous working memory load that contributes little to learning. When learning to solve problems in an area, it is more efficient to have learners study worked examples indicating the solution steps rather than have them attempt to generate solutions themselves.

Eliminating *split attention* can decrease extraneous cognitive load. Imagine a geometric diagram with an associated statement under the diagram: "Angle ABC equals angle XYZ." Learners must split their attention between the diagram and the statement to search for angles ABC and XYZ on the diagram. That search process utilizes scarce working memory resources to mentally integrate the two sources of information. We can eliminate this split attention by placing the statement on the diagram (physical integration) rather than requiring learners to mentally integrate the two sources of information. Physical integration facilitates learning.

Working memory includes partially independent visual and auditory processors. The visual processor deals with two- and three-dimensional visual information, while the auditory processor deals with speech. Using both processors can increase effective working memory capacity, resulting in the *modality* effect. Thus, learning can be facilitated if learners hear "Angle ABC equals angle XYZ" rather than attempting to read the statement while looking at the diagram.

The split-attention and modality effects only apply when two or more sources of information are unintelligible in isolation. In contrast, if, for example, a statement merely redescribes a diagram, it should be eliminated because the presence of both sources of information requires learners to unnecessarily use working memory resources to process the redundant information. Improved learning following the elimination of redundant information provides an example of the *redundancy* effect.

As the levels of expertise in an area increase, the difference between the two instructional techniques may reduce, then disappear, and finally reverse, resulting in the *expertise reversal* effect. In most cases, the effect of redundancy provides the reason for these changes in effectiveness. Information that is required for novices to understand the material may be redundant when provided to more knowledgeable learners.

There are many other cognitive load theory–based instructional effects, with new effects being generated constantly. The ability to generate such effects provides a degree of validity to the theory.

John Sweller

See also Cognitive Revolution and Information Processing Perspectives; Evolution and Educational Psychology; Learning, Theories of; Transfer of Learning

Further Readings

Darwin, C. (2003). *The descent of man.* London, England: Gibson Square. (Original work published 1871)

Geary, D. (2012). Evolutionary educational psychology. In K. Harris, S. Graham, & T. Urdan (Eds.), *APA educational psychology handbook* (Vol. 1, pp. 597–621). Washington, DC: American Psychological Association.

Kalyuga, S. (2011). Cognitive load theory: How many types of load does it really need? *Educational Psychology Review, 23*(1), 1–19.

Popper, K. (1979). *Objective knowledge: An evolutionary approach.* Oxford, England: Clarendon Press.

Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive load theory.* New York, NY: Springer.

Cognitive Revolution and Information Processing Perspectives

How do people learn, remember, and solve problems? Questions about learning, memory, and cognition have instigated an explosion of empirical research evidence, but building useful answers to these questions requires more than simply assembling a research base. Understanding human learning, memory, and

cognition requires a theoretical framework for systematizing and interpreting existing research and for suggesting new research questions and studies. Influential theoretical frameworks in psychology and education are often conceptualized as metaphors (Sternberg, 1990), and advances in scientific fields can be facilitated by shifts in the conceptual metaphor underlying the dominant theoretical framework of the day (Gardner, 1985; Kuhn, 1970).

In the fields of psychology and education, the *cognitive revolution* refers to the shift from associationist conceptions of how the mind works to information processing conceptions (Mayer, 1992, 1996, 2008a). The *information processing* conception is based on the underlying metaphor of the mind as a computer and has served as the dominant view since the 1960s (Neisser, 1967; Rumelhart, 1977). The goal of this entry is to explore the cognitive revolution, and the information processing view on which it is based, as well as to examine the contributions, limitations, and future of the cognitive revolution.

What Is the Information Processing Perspective?

Humans are processors of information. This statement epitomizes the information processing view of how the human mind works. According to the information processing view, human mental life consists of applying cognitive processes to mental representations. Classic examples include mentally comparing two elements to determine whether they are the same or different, or mentally rotating an image.

Distinction Between Mental Representations and Cognitive Processes

As can be seen, there are two key elements in the information processing view: *mental representations* and *cognitive processes*. Mental representations refer to information or knowledge held within one's information processing system, such as the meaning of this paragraph, or a mental image. Cognitive processes (or mental computations) involve carrying out an operation on a mental representation, such as mentally rotating an image or determining whether two representations are the same or different. A major focus of the information processing approach to how the mind works is specifying how knowledge is represented and manipulated in learning, memory, and cognition.

Mental representations can take a verbal or spatial format, or perhaps some other kind. For example, Figure 1 shows a spatial representation of
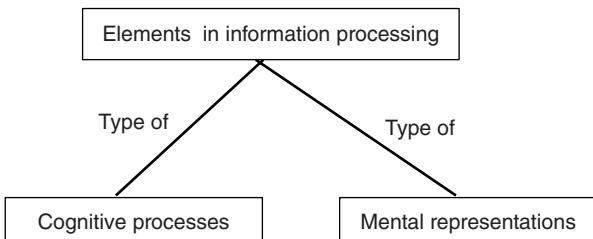
Figure 1 A Mental Representation of Text
Source: Richard E. Mayer.

the first sentence of this section. Developing useful techniques for representing knowledge is a major task of the information processing approach.

Cognitive processes take time and can be described in a flow chart or computer program. Any cognitive task can be broken down into component processes and represented as a flow chart or computer program through a process called *cognitive task analysis*. For example, consider a child who solves the arithmetic problem "What is 2 + 3?" by putting out two fingers on one hand and saying "2" and counting out three fingers one by one in the other hand while saying "3, 4, 5." This is an example of the counting-on procedure for simple addition, which can be broken down into four steps, as represented in the flow chart at the top of Figure 2 and the computer program at the bottom of Figure 2. The first step is to set a counter to the first number (e.g., 2); the second step is to

A flow chart for *m + n* = ___
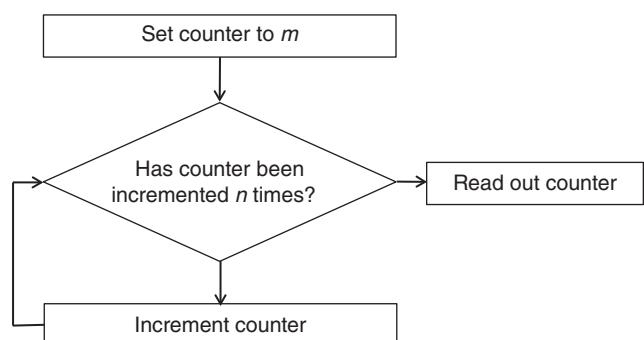
A program for *m + n* = ___
1. Set counter to *m*.
2. Has counter been incremented *n* times?
3. If yes, stop and read out counter.
4. If no, increment counter, and go to Step 2.

Figure 2 Cognitive Processes for Simple Addition
Source: Richard E. Mayer.

determine whether you have incremented it by the second number (e.g., three times), to keep incrementing the counter until you have reached the second number, and then to recite the number in the counter. In this case, cognitive task analysis results in the specification of the cognitive processing involved.

Architecture of the Human Information Processing System

Where do all these mental computations take place? In addition to focusing on mental representations and cognitive processes, a major focus of the information processing approach is on the architecture of the human information processing system, in which memory stores are represented as boxes and cognitive processes are represented as arrows. Figure 3 presents a model of the human information processing system, adapted from Mayer's (2009) cognitive theory of multimedia learning, that consists of three memory stores (sensory memory, working memory, and long-term memory) indicated by boxes, three major cognitive processes (selecting, organizing, and integrating) indicated by arrows, and two channels (visual and verbal) indicated by rows.

Information from the outside world enters the cognitive system through the eyes or ears and is held for a fraction of a second in sensory form in *sensory memory*. If the learner attends to part of the fleeting sensory image (indicated by the *selecting* arrow), some of the information is transferred to *working memory*, where it is represented in a format suitable for applying various cognitive processes (indicated by the *organizing* arrow), which can change the representation. In contrast to sensory memory and long-term memory, working memory is limited in capacity, so that only a few pieces of information can be processed in each channel at any one

time. The limited capacity of working memory has crucial implications for how learning, memory, and cognition work, and recognizing the limitations on information processing in working memory is perhaps the single most important contribution of the information processing perspective. The learner can activate relevant prior knowledge from *long-term memory* and combine it with the incoming information in working memory (indicated by the *integrating* arrow). The newly constructed knowledge representation in working memory can be stored in long-term memory, which is the learner's permanent storehouse of knowledge.

Three major principles inherent in the human information processing model shown in Figure 3 are the *dual-channels principle*, the *limited capacity principle*, and the *active processing principle*. The dual-channels principle is the idea that people have separate information processing channels for visual/spatial representations and auditory/verbal representations. The limited capacity principle is that people are able to actively hold and manipulate only a few items in each channel at any one time. The active processing principle is that learning and cognition require active cognitive processing, including selecting relevant information, organizing it into a coherent representation, and integrating it with relevant prior knowledge.

The information processing view is grounded, of course, in a computer metaphor, in which learning, memory, and cognition in computers are likened to learning, memory, and cognition in humans, as summarized in Table 1. The rows represent the three aspects of mental life—learning, memory, and cognition—and the columns show how computers and humans are similar in each of these areas. Overall, both computers and humans receive information from the outside world, store it in memory, and perform operations on it.
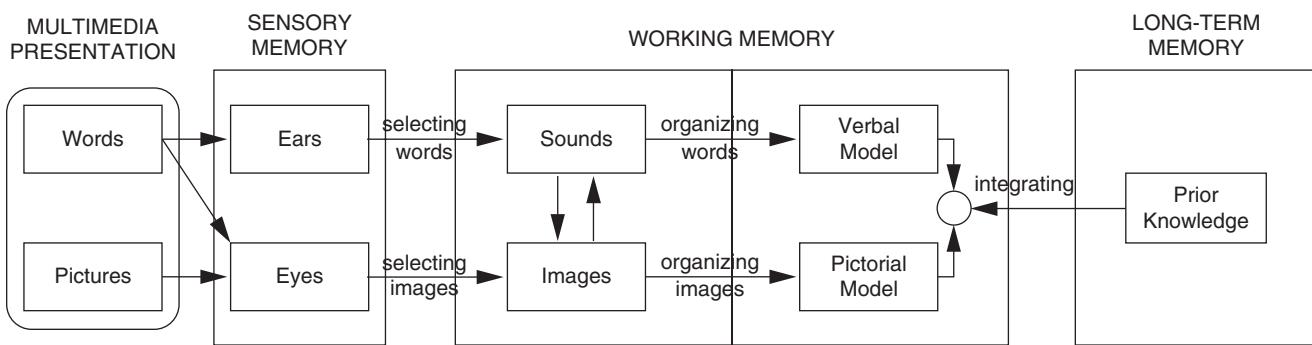
Figure 3 Architecture of the Human Information Processing System
Source: Mayer, Heiser, and Lonn (2001). Reprinted with permission from the American Psychological Association.

Table I How Is a Computer Like a Human?

Domain	Computers	Humans
Learning	Information is input into computers.	Information is presented to humans.
Memory	Computers store information in memory and retrieve information from memory.	Humans store information in memory and retrieve information from memory.
Cognition	Computers perform computations on the stored information.	Humans apply cognitive processes to mental representations.

Two Versions of the Information Processing Perspective

The fundamental elements in the information processing approach are the distinction between the concept of information (i.e., mental representations) and the concept of processing (i.e., cognitive processing), but researchers can differ in how they conceptualize this. Thus, although the information processing perspective can take different forms, most information processing models can be classified as the classic view or the constructivist view, based on how they conceptualize the nature of mental representations and the nature of cognitive processing.

As shown in the top row of Table 2, in the classic view, human cognition consists of applying operations to information. As proposed in information theory, information is an objective commodity that exists in the same form in the outside world as in someone's mind. For example, knowing whether a

Table 2 Two Versions of the Information Processing View

Version	Mental Representations	Cognitive Processing
Classic view	Information	Applying operations
Constructivist view	Knowledge	Selecting, organizing, and integrating knowledge

digit is a 0 or 1 provides the same piece of information whether it is represented on a piece of paper, in a computer's memory, or in a human's memory.

As proposed in computer simulation models, an operation is a precise algorithm (or procedure) that for any given input will always give the same output. For example, using arithmetic operations, inputting 2 + 3 always gives you 5 as the output. The classic view can be commended for its precision, but it can be criticized on the grounds that it reduces human cognition to symbol manipulation.

In contrast, as shown in the bottom half of Table 2, in the constructivist view people engage in knowledge construction by selecting important pieces of incoming sensory information, mentally organizing them into coherent mental representations, and integrating them with relevant prior knowledge. In short, learning, remembering, and thinking are sense-making activities in which a new cognitive structure is created. In the constructivist view, mental representations are knowledge structures that are constructed by the learner rather than transmitted from the environment, and cognitive processing involves activity aimed at building knowledge structures, such as selecting, organizing, and integrating. The constructivist view can be criticized for its lack of precision and commended on the grounds that it restores human cognition to a sense-making activity, consistent with earlier musings by Bartlett (1932), Piaget (1971), and the Gestalt psychologists. An important goal of cognitive science has been to meld an approach that has the theoretical authenticity of the constructivist view and the methodological precision of the classic view.

What Is the Cognitive Revolution?

Table 3 summarizes three visions of how the mind works for learning and remembering—*response strengthening, information acquisition,* and *knowledge construction.* When scientific psychology began in the late 1800s, the dominant view of how the human mind works was borrowed from a 2,000-year-old tradition of associationist theory in mental philosophy. According to this view, labeled as "Response strengthening" in the top row of the table, learning involves strengthening and weakening of stimulus–response associations, based on the consequences of the learner's actions. According to this view, remembering involves following a chain of associations from the stimulus to the most strongly associated response. Although the response strengthening view dominated psychology for the first half of

Table 3 Three Visions of Learning and Remembering

View	How Learning Works	How Remembering Works
Response strengthening	Strengthening or weakening associations	Following a chain of associations
Information acquisition	Adding information to memory	Retrieving information from memory
Knowledge construction	Building cognitive structures	Reconstructing cognitive structures

the 20th century, boosted in part by its methodological precision and affordances for mathematizing human cognition, it has been criticized for difficulties in explaining how people create novel solutions to problems they have not seen before and for its focus on rats and pigeons rather than humans.

The cognitive revolution in the 1950s and 1960s propelled a competing view to prominence based on the challenges of explaining how humans learn rather than how lab animals learn—the information acquisition view. As shown in the second row of the table, according to the information acquisition view, learning involves putting information into memory, and remembering involves taking it out. By the 1970s and 1980s, a modified version came to prominence; it was based on the challenges of explaining how the mind works in authentic contexts rather than on contrived laboratory tasks—the knowledge construction view. As shown in the third row of the table, learning involves building mental representations by integrating incoming information with existing knowledge rather than building up the strength of memory traces. In addition, remembering involves reconstructing one's knowledge rather than simply plucking a memory trace from memory.

An emerging modification is the social constructivist view, which holds that knowledge construction can be influenced by the social context in which it occurs, such as through discussion. This mild version of social constructivism can be seen as an extension of the third row in the table.

The Crucial Work in the Late 1950s

The year 1956 is often listed (sometimes along with 1957) as the turning point for the cognitive revolution, as reflected in the convergence of several important publications: Miller's (1956) "magical number seven" review of performance on classic lab tasks, showing that humans consistently displayed a limited capacity for cognitive processing in what is now called working memory (which seemed to be able to hold in attention seven chunks of information, plus or minus two chunks); Bruner, Goodnow, and Austin's *A Study of Thinking* (1956), showing that unlike lab animals, which appear to strengthen and weaken responses in discrimination learning tasks, humans tend to construct and test hypotheses in concept learning tasks; Chomsky's *Syntactic Structures* (1957), showing that the field of linguistics could be improved by considering how language utterances are represented in the learner's mind (as deep structure) rather than simply based on formal syntactic rules (as surface structure); and the first influential computer simulation of complex thinking reported by Newell and Simon (1956).

Although the 1950s marked the beginning of the cognitive revolution, there were earlier musings about an alternative to the idea that the mind mainly involves the strengthening and weakening of associations. Bartlett (1932) offered a cognitive view by demonstrating that people interpret stories to fit with their existing schemas both at the time of learning and at the time of remembering. Similarly, Piaget (1971) demonstrated how children's learning and development can be viewed as assimilating incoming information to existing schemas (or accommodating it by constructing new ones), rather than as building associations. Gestalt psychologists and their forerunners showed that creative problem solving involves building cognitive structures rather than following a chain of responses.

The Cognitive Revolution in Applying the Science of Learning to Education

The cognitive revolution can be seen as an attempt to address practical problems (e.g., the educational question of how to help students learn to read, write, or do arithmetic) and theoretical problems (e.g., how learning works). Stokes (1997) uses the term *use-inspired basic research* to characterize research that has both theoretical and practical implications, in contrast with pure basic research (with no practical goal) or pure applied research (with no theoretical goal). In attempting to apply the science of learning to educational problems, the cognitive revolution is shaped by the dual goals of building a science

of instruction (i.e., in response to practical problems in the real world) and building a science of learning (i.e., by extending learning theory to account for authentic learning situations). In short, practical problems helped create the cognitive revolution by challenging psychologists to explain learning, memory, and cognition beyond the confines of contrived lab tasks.

Reciprocally, the cognitive revolution contributed to solving practical problems in education by helping spawn psychologies of subject matter, such as in reading, writing, and arithmetic. In reading, for example, cognitive research shows that learning to read printed text depends on students being able to engage in the cognitive processes of detecting and producing each of the sound units of their language—which has been called *phonological awareness*. In writing, cognitive research shows that proficiency in writing essays depends on students being able to engage in the cognitive process of generating and organizing ideas—which has been called *planning*. In arithmetic, cognitive research shows that learning to add and subtract depends on students being able to conceptualize and manipulate a *mental number line*. In short, cognitive research helped identify phonological awareness as a readiness skill for learning to read, planning as a readiness skill for writing, and the mental number line as a readiness skill for arithmetic.

Contributions of the Cognitive Revolution

The following are some contributions of the cognitive revolution and the information processing view it instigated.

1. The cognitive revolution involved a move away from a focus on behavior to a focus on the mind and from associationist conceptions of how the mind works to an information processing view. Humans are viewed as active processors of information rather than passive recipients of rewards and punishments.

2. The cognitive revolution instigated a unified and powerful framework for explaining learning, memory, and cognition, based on flow chart models with memory stores as boxes and cognitive processes as arrows. A particularly important aspect of the information processing model is that working memory is limited in capacity—a conception that has crucial implications for learning, memory, and cognition.

3. The cognitive revolution created a lasting change that has undergone several important adjustments in the course of the past 50 years, including a constructivist conception of how information processing works. This long-lasting conception has stimulated useful research in the field.

4. The cognitive revolution highlighted the role of mental representations and cognitive processing in mental life, and led to clearer descriptions of the role of knowledge and processes in the performance of cognitive tasks.

5. The cognitive revolution highlighted the role of cognitive processing in mental life and, as with mental representations, led to clearer descriptions of the role of knowledge processes in the performance of cognitive tasks.

6. Finally, the cognitive revolution fostered a transition from research on lab animals to research on humans and, eventually, from research with contrived lab tasks to research on authentic tasks.

Limitations of the Cognitive Revolution

Some of the limitations of the cognitive revolution are the following:

1. The cognitive revolution did not explicitly consider the role of affect, interest, and motivation or the role of social, cultural, and evolutionary factors. By focusing solely on cold cognition, the information processing model was incomplete.

2. The cognitive revolution did not initially take advantage of research in neuroscience, but current work in cognitive neuroscience is addressing this shortcoming.

3. The cognitive revolution did not adequately address the role of executive control in the information processing system, such as metacognitive awareness and control of the information processing system.

4. The cognitive revolution initially viewed mental representations as objective information rather than as constructed knowledge.

5. The cognitive revolution initially viewed cognitive processing as applying algorithms rather than as constructing knowledge.

6. The cognitive revolution initially focused on contrived laboratory tasks rather than on authentic, real-world tasks.

However, as the information processing approach has matured, progress has been made in overcoming each of these shortcomings.

What Is the Future of the Cognitive Revolution?

The cognitive revolution and the model of information processing it inspired represent an important step in creating an alternative to associationist conceptions of how the mind works. Born in the 1950s and in the 1960s, the information processing model has proved to be a remarkably useful, resilient, and adaptive intellectual force in psychology. This resiliency can be seen in the way the information processing model has morphed from the classic view (in which information is manipulated) to the constructivist view (in which knowledge is constructed), in response to challenges to explain learning and cognition in authentic situations, or what can be called "applying the science of learning." The resiliency can be attributed to the way the information processing approach offers a general framework (or language about cognitive processing) into which current theories can easily fit.

What does the future hold for the cognitive revolution and its information processing perspective? The information processing perspective is challenged on the left by radical social constructivism, on the right by cognitive neuroscience and computational modeling, and from the past by the unfinished business of Gestalt psychology.

Challenges From Radical Social Constructivism

First, the cognitive revolution faces challenges on the left from radical social constructivism, which holds that knowledge is stored and processed solely in social groups rather than in individual minds. Instead of enriching or extending the information processing model, radical constructivism calls for its complete elimination along with cognitive science. Although there is some empirical evidence for the mild version of social constructivism (which holds that people working together can help each other learn and solve problems), there is little empirical or logical support for the radical version (which, like the behaviorists of yesteryear, banishes cognitive processing from human minds).

Challenges From Reductionism

Second, the cognitive revolution faces challenges on the right from the forces of reductionism—in the guise of replacing psychology with either neuroscience or mathematics, or perhaps both. Although cognitive neuroscience has potential to help test and refine the information processing model in ways not available through purely behavioral research, the cognitive revolution is threatened by attempts to replace the mind with the brain, replace cognitive processes with ERP (event-related potential) patterns, and replace knowledge structures with fMRI (functional magnetic resonance imaging) images. Throughout its more than 100-year existence, psychology has faced the constant threat of being reduced to biology. Although understanding how the human mind works can be informed by biology, it should not be replaced by it.

Similarly, the history of the cognitive revolution is replete with attempts to mathematize human mental life, sometimes as equations (Hull, 1943) and sometimes as computer programs (Newell & Simon, 1972). However, although equations and computer programs can be helpful in clearly rendering various cognitive theories, they are tools for representing theories about information processing rather than the theories themselves.

Challenges of Unfinished Business

Finally, the constructivist version of the information processing view, which currently is the dominant view, has its roots in the classic vision of learning and cognition as structure building. The structure building notion is reflected in Bartlett's (1932) vision of learning as assimilation to schema, Piaget's (1971) notion of cognitive development as assimilation and accommodation of schemas, and Gestalt notions of perception and cognition as mentally reorganizing elements into a coherent structure. In some ways, today's vision of human mental life as consisting of structure building—that is, constructing schemas—represents a return to the unfinished business of Gestalt psychology. In short, the information processing approach is poised to address the enduring challenge of understanding the cognitive processing involved in building cognitive structures, which underpin human understanding.

In a stinging critique of Gestalt approaches to mental life written nearly 60 years ago, Estes (1954) asked why it is that, if Gestalt theories based on understanding and meaning and organization are so superior, "the most superior theories of learning have had the least influence upon research" (p. 341). Estes's critique still has the ring of truth

today, because over the years, research based on the classic version of information processing has yielded a much larger research base than research based on the constructivist version of information processing. Yet as the information processing approach continues to develop in the 21st century, it may finally prompt the rigorous and innovative research needed to better understand the role of structure building in learning and cognition.

Richard E. Mayer

Author's Note: Preparation of this entry was supported by a grant from the Office of Naval Research.

See also Associationism; Behaviorism; Bruner, Jerome; Chomsky, Noam; Cognitive Load Theory and Learning; Distributed Cognition; Insight Learning; Metacognition; Neurosciences and Learning; Piaget, Jean; Pure and Applied Research and *Pasteur's Quadrant*

Further Readings

Baddeley, A. D. (1992). Working memory. *Science, 255,* 556–559.

Bartlett, F. C. (1932). *Remembering.* Cambridge, England: Cambridge University Press.

Bradley, L., & Bryant, P. (1983). Categorizing sounds and learning to read: A causal connection. *Nature, 301,* 419–421.

Bruner, J. S., Goodnow, J. J., & Austin, G. A. (1956). *A study of thinking.* New York, NY: Wiley.

Chomsky, N. (1957). *Syntactic structures.* The Hague, Netherlands: Mouton.

Estes, W. K. (1954). Kurt Lewin. In W. K. Estes, S. Koch, K. MacCorquodale, P. Meehl, C. Mueller, Jr., W. Schoenfeld, & W. Verplanck (Eds.), *Modern learning theory* (pp. 317–344). New York, NY: Appleton-Century-Crofts.

Gardner, H. (1985). *The mind's new science: A history of the cognitive revolution.* New York, NY: Basic Books.

Hull, C. (1943). *Principles of behavior.* Englewood Cliffs, NJ: Prentice Hall.

Kuhn, T. S. (1970). *The structure of scientific revolutions.* Chicago, IL: University of Chicago Press.

Mayer, R. E. (1992). Cognition and instruction: Their historic meeting within educational psychology. *Journal of Educational Psychology, 84,* 405–412.

Mayer, R. E. (1996). Learners as information processors: Legacies and limitations of educational psychology's second metaphor. *Educational Psychologist, 31,* 151–161.

Mayer, R. E. (2004). Teaching of subject matter. In S. T. Fiske, D. L. Shallert, & C. Zahn-Waxler (Eds.), *Annual review of psychology* (Vol. 55, pp. 715–744). Palo Alto, CA: Annual Reviews.

Mayer, R. E. (2008a). Information processing. In T. L. Good (Ed.), *21st century education: A reference handbook* (Vol. 1, pp. 168–174). Thousand Oaks, CA: Sage.

Mayer, R. E. (2008b). *Learning and instruction* (2nd ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Mayer, R. E. (2009). *Multimedia learning.* New York, NY: Cambridge University Press.

Mayer, R. E. (2011). *Applying the science of learning.* Upper Saddle River, NJ: Pearson Education.

Mayer, R. E., Heiser, J., & Lonn, S. (2001). Cognitive constraints on multimedia learning: When presenting more material results in less understanding. *Journal of Educational Psychology, 93,* 187–198.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limitations on our capacity for processing information. *Psychological Review, 63,* 81–97.

Neisser, U. (1967). *Cognitive psychology.* New York, NY: Appleton-Century-Crofts.

Newell, A., & Simon, H. (1956). The logic theory machine: A complex information processing system. *IRE Transactions on Information Theory, 2,* 61–79.

Newell, A., & Simon, H. (1972). *Human problem solving.* Englewood Cliffs, NJ: Prentice Hall.

Phillips, D. C. (1998). How, why, what, when, and where: Perspectives on constructivism in psychology and education. *Issues in Education, 3*(2), 151–194.

Piaget, J. (1971). *Science of education and the psychology of the child.* New York, NY: Viking Press.

Rumelhart, D. E. (1977). *Human information processing.* New York, NY: Wiley.

Sternberg, R. J. (1990). *Metaphors of mind.* New York, NY: Cambridge University Press.

Stokes, D. E. (1997). *Pasteur's quadrant: Basic science and technological innovation.* Washington, DC: Brookings Institution Press.

COLEMAN REPORT

On July 2, 1966, the U.S. Commissioner of Education, Harold Howe II, submitted to the president and the Congress a national report, Equality of Educational Opportunity, usually referred to as the Coleman Report after its lead researcher, the Johns Hopkins University sociologist James S. Coleman. The report was a response to a congressional mandate in Section 402 of the Civil Rights Act of 1964:

The Commissioner shall conduct a survey and make a report to the President and the Congress, within two years of the enactment of this title, concerning

the lack of availability of equal educational opportunities for individuals by reason of race, color, religion, or national origin in public educational institutions at all levels in the United States, its territories and possessions, and the District of Columbia.

This entry discusses how the national survey that led to the findings was conducted, why the report was considered groundbreaking, the findings of the report, and its ongoing legacy.

Coleman assumed primary responsibility for survey design and data analysis for the project overall; the report was commonly referred to as the Coleman Report. The survey was collected by Ernest Campbell at Vanderbilt University. Campbell played a key role in conducting the surveys in higher education. The survey team study also received advice from an 18-member national advisory committee made up of six urban school superintendents, two presidents of historically Black institutions of higher education, and one state education commissioner.

The national survey, which had an overall response rate of about 70%, was a major undertaking even by today's standard. Data were collected during September and October 1965. The sample included about 60,000 teachers and administrators as well as 600,000 students in 1st, 3rd, 6th, 9th, and 12th grades in more than 3,000 schools across the nation. Survey response was somewhat uneven across regions, with about 60% and 80% of nonurban schools in the South and the North participating, respectively.

The Coleman Report marked the beginning of a new era for social science research in addressing key societal concerns. Coleman went beyond simply providing descriptive statistics by applying statistical methods for inferences. As high-speed computers became more readily available to the social science community in the mid-1960s, Coleman and his associates were able to make use of the advantages of surveys with large sample sizes and multiple variables at multiple levels of the school organization. In reviewing Coleman's contributions to the study of education issues, James Heckman and Derek Neal observed that the research of the Coleman Report "demonstrated the value of large-scale data sets and empirical social science for evaluating social programs" (Heckman & Neal, 1996, p. 84).

The Coleman Report offered a systematic look at the status of equality of opportunity in public education in the mid-1960s. The data collection focused on six racial and ethnic groups. These groups, using the social categories in 1965, were Negroes, American Indians, Oriental Americans, Puerto Ricans living in the continental United States, Mexican Americans, and Whites.

The report found that public education was racially segregated. In the South, the report found that "most students attended schools that are 100 percent white or Negro." In 1965, 54% of the Black school-age population lived in the South. At the national level, about two thirds of all Black students attended schools that were racially isolated, with Black students making up at least 90% of the student body. Eight out of 10 White students were enrolled in racially isolated schools with at least 90% White students.

Using disaggregated data across different racial and ethnic groups, the survey showed a significant and persistent majority–minority achievement gap over the course of schooling. At the first grade, minority students on average scored at one standard deviation below their White peers. This initial achievement gap, however, worsened as the grade progressed. For example, while Black sixth graders were 1.6 years behind their White peers in achievement, the former was 3.3 years behind the latter at 12th grade.

The Coleman Report was groundbreaking not only because of its extensive treatment on an important societal challenge but also because of its empirical examination of the relationship between school-based resources and student achievement. In this regard, the report challenged the conventional understanding of a straightforward, positive relationship between school resources and student achievement. In a 1983 interview, Coleman reflected on the different approach:

Ordinarily, quality of schools had been defined in terms of inputs to the schools. We asked about outputs, using achievement outputs as criteria for judging the relative quality of schools. Even though that was not exactly a result, I think it had an important effect in reshaping the way in which educational research questions were asked after EEOC [Equality of Educational Opportunity]. (quoted in Barber, 1987, p. 34)

Although the report's analytical design and methods have been scrutinized by succeeding generations of policy analysts and social scientists, the main research questions posed by Coleman and his

associates on the relationship between inputs and outputs remain relevant. The report offered an empirical approach to measure the types of inputs that were assumed to affect schooling outputs. In this regard, key findings of the Coleman Report would influence how policy analysts and policymakers think about the nature of equal educational opportunities.

Coleman and his associates found that school resources, including school facilities, curriculum, and teacher quality, did not show overall statistically significant effects on student achievement. According to the report,

> Differences in school facilities and curriculum, which are the major variables by which attempts are made to improve schools, are so little related to differences in achievement levels of students that, with few exceptions their effects fail to appear even in a survey of this magnitude.

School resources, however, were found to have some positive effects on student achievement for Black students. Variations in teacher quality were found to have a cumulative effect on student achievement over the years, and these effects were greater for racial minorities than for White students. Teachers' verbal scores and educational backgrounds, for example, had a positive effect on achievement for minority students in the upper grades. For the whole student sample, including White and minority students, there was a general lack of significant effects of teacher characteristics, as measured in terms of teacher quality, teachers' family education level, teachers' own education, and teachers' score on a vocabulary test.

Variations in school facilities, including science laboratories, showed positive effects on Black student achievement. Resource variations did not generate significant effects for White students. As the report stated, "It is for majority whites that the variations make the least difference; for minorities, they make somewhat more difference." In other words, resources seemed to have differential effects on different racial groups.

The Coleman Report also made another important contribution by showing the differential effects of racial backgrounds on student achievement. The report found a strong relationship between the social composition of schools and student academic achievement. As the report observed, "Attributes of other students account for far more variation in the achievement of minority group children than do any attributes of school facilities and slightly more than do attributes of staff." The report further clarified that higher student achievement was associated with a more diverse student body that encompassed diverse educational backgrounds and aspirations. As the report explained,

> The higher achievement of all racial and ethnic groups in schools with greater proportions of white students is largely, perhaps wholly, related to effects associated with the student body's educational background and aspirations. This means that the apparent beneficial effect of a student body with a high proportion of white students comes not from racial composition per se, but from the better educational background and higher educational aspirations that are, on the average[,] found among white students.

This second major finding on social composition has played an important role in forming the empirical basis for those who advocated for racial integration in public schools.

Since its publication almost 50 years ago, the Coleman Report has generated broad interest and debate on the effects of schools and families on student achievement. Generations of scholars in sociology of education and education policy have debated the report's scholarly and policy impact. The report's findings have inspired doctoral dissertations, foundation grants, and governmental intervention. Many studies, with growingly sophisticated research design over time, have questioned whether the Coleman Report has underestimated the effects of schooling conditions on student achievement, whether the sampling procedures were properly handled, whether the implications on racial integration were exaggerated, and whether the survey response rate was sufficient, among other concerns. At the same time, many more studies continued to recognize the groundbreaking contributions of the report on understanding equal opportunities in public schools. Clearly, the work of the Coleman Report remains just as relevant today in our growingly diverse society as it was half a century ago.

Kenneth K. Wong

See also Achievement Gap; Equality of Educational Opportunity; Legal Decisions Affecting Education

Further Readings

Barber, B. (1987). *Effective social science: Eight cases in economics, political science, and sociology* (p. 34). New York, NY: Russell Sage Foundation.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity*. Washington, DC: Government Printing Office.

Dreeben, D. (2000). Structural effects in education. In M. T. Hallinan (Ed.), *Handbook of the sociology of education* (pp. 107–135). New York, NY: Kluwer Academic Plenum.

Heckman, J., & Neal, D. (1996). Coleman's contribution to education: Theory, research styles, and empirical research. In J. Clark (Ed.), *James S. Coleman* (pp. 81–102). Philadelphia, PA: Falmer Press.

Wong, K., & Nicotera, A. (2004). *Brown v. Board of Education* and the Coleman Report: Social science research and the debate on educational equity. *Peabody Journal of Education, 79*(2), 122–135.

COLONIALISM AND POSTCOLONIAL THEORY

In its current form, postcolonial theory has emerged out of what has been called the "cultural turn" in the social sciences, although the term *postcolonial* itself has a longer history. It was widely used by historians after World War II to designate the postindependence period. In this sense, postcolonialism has a chronological meaning, referring to national formations after the colonial period had formally ended. Since the 1970s, however, postcolonial theory has involved debates over the manner in which colonial experiences are represented and about the ways in which European colonization has left residual and persistent effects on both the colonized and colonizing people. Located largely in the disciplines of literary and cultural studies, recent postcolonial theory has been used to interrogate the discursive origins of colonial rule, drawing on a longer tradition of critical, anticolonial theorizing, on the one hand, and on newer poststructuralist resources of philosophizing, on the other. In this way, postcolonialism has demanded a rethinking of knowledge and social identities authored and authorized by colonialism. Applied to education, postcolonial theory emphasizes the importance of understanding the link between globalization and education—namely, that educational policies and practices are always to be understood in terms of the historical legacy and the emerging cultural forces specific to a given locale.

Theoretically, postcolonialism draws attention to the ways in which language works in institutionalizing various colonial relations of power. It is thus based on a theory of meaning that views language in terms of its performance functions, assuming discourse and power to be inextricably linked. This does not imply there is nothing "outside the text," as some strands of thinking in poststructuralism appear to suggest. Rather, postcolonialism points to the ways in which social texts are shaped by a range of economic and political forces and interests at various levels of practice. Postcolonialism's aspirations are thus not only theoretical but also political. Postcolonial analysis seeks an understanding, for example, of the manner in which global inequalities are perpetuated both through the distribution of resources and through neocolonial modes of representation. In political terms, such an analysis, it is argued, has the potential to suggest ways of resisting colonial power in order to forge a more socially just world order. Rather ambitiously, Robert Young argues that "postcolonialism seeks to change the way people think, the way they behave, to produce a more just and equitable relation between different peoples of the world" (Young, 2003, p. 7).

Colonial Discourse: The Influence of Edward Said

Although the historical origins of postcolonial theory are contested, Edward Said is often cited as a central figure in its development. In his book *Orientalism* (1979), Said uses the Foucauldian insights concerning the nexus between knowledge and power to provide a theoretical account of how knowledge about the "Orient" was produced and circulated as an ideological accessory to colonial power—that is, how European representations of non-European cultures were used as instruments of power and how many of these representations continue to inform contemporary economic, political, and social practices. Said uses the notion of discourse to reconceptualize the study of colonialism. He shows how representations of the "Orient" in European literary texts, travelogues, and other writings contributed to the creation of a binary between Europe and its "others" and how colonial discourse has been fundamental to the maintenance and extension of European hegemony over other lands, through a range of normalizing

assumptions about European superiority over the groups of people Europe colonized.

It is important to note that *colonial discourse* is not simply a new term for colonialism. Rather, it suggests a new way of thinking about how economic, cultural, political, and educational processes work together in both the creation and the perpetuation of colonialism, on the one hand, and in the organization of resistance to it, on the other. The scope of the studies of colonial processes is thus widened to include an interrogation of the intersection of ideas and institutions, and knowledge and power. As Ania Loomba (1998) points out, colonial violence can now be understood as including an "epistemic" dimension—an attack on the ideas, values, and cultural institutions of the colonized peoples (p. 54). A postcolonial examination of colonial discourse thus requires an assessment of how stereotypes, images, and various cultural generalizations are linked to the institutions of economic, judicial, and administrative control, including control exercised through schools, colleges, and universities.

A significant body of literature now exists that demonstrates the ways in which such generalizations are shaped by colonial assumptions. For example, in most colonial texts, Europe is represented as the place of historical progress and scientific development, while colonized cultures are deemed to be remote from enlightened historical shifts. From the perspective of European norms, colonized cultures are assumed to be peculiar—unusual, fantastic, and bizarre. Ultimately, these portrayals serve as markers of Oriental inferiority, while the West is assumed to be sensible, rational, and familiar. Non-European cultures are moreover represented in terms of various invidious racial stereotypes, such as the violent Arabs, lazy Indians, and inscrutable Chinese. The colonial discourse also involves popular stereotypes of the effeminate Oriental male and the sexually promiscuous Oriental female.

Responses to Said: Bhabha and Spivak

As influential as Said's discussion of the nature of colonial discourse has been, it has evoked a whole range of critical responses and elaborations. A number of subsequent theorists have been critical of the universalizing tendencies in Said's account of Orientalism. According to Homi Bhabha (1994), for example, colonial discourses are often more ambivalent, and much less resolute, than is implied in Said's analysis. Bhabha refuses to interpret identity and

difference in essentialist terms, conceptualizing them instead in terms of the overlapping, migratory movements of cultural formations across a global division of labor. He highlights the "in-between" categories of competing cultural differences and suggests that postcoloniality always involves the "liminal" negotiation of cultural identity across differences of race, class, gender, and cultural traditions. He argues that cultural identities cannot be ascribed pregiven, irreducible, scripted, and ahistorical cultural traits. Nor can the "colonizer" and the "colonized" be viewed as separate entities that define in terms that are independent of each other.

For Bhabha (1994), identity is always "hybrid," produced performatively in contexts that are sometimes antagonistic and sometimes affiliative. He maintains that "the social articulation of difference, from the minority perspective, is a complex, ongoing negotiation that seeks to authorize cultural hybridities that emerge in moments of historical transformation" (p. 23). Bhabha thus refuses to view colonial power in an absolute sense, always guaranteed to produce the intended effects in the colonial subjects. Instead, he believes that it involves subversion, transgressions, insurgence, and mimicry.

In this way, Bhabha accords considerable importance to the colonized subject's linguistic agency.

The question of the extent to which it is possible for colonial subjects to enact this agency is central to the work of Gayatri Spivak (1988). She argues that the capacity of the colonized subject to resist may itself be constrained by the linguistic power of the dominant group, along with the incapacity of the powerful to hear the voice of the subaltern. She cautions against the claim that it is always possible for the postcolonial historian to recover the voice of the subaltern, suggesting that this assumption underestimates the repressive scope of colonial hegemony and, especially, of the ways in which it has historically intersected with patriarchy. Spivak does not, however, entirely dismiss the desire of postcolonial intellectuals to highlight the nature and scope of the colonial oppression from the perspective of the marginalized people. Instead, she underscores the dual perspective embodied in Antonio Gramsci's description of himself as a pessimist because of intelligence, an optimist because of will.

For Bhabha, this politics is best captured by the notion of hybridity. It is in its hybrid forms that colonial knowledge can be reinscribed and given new, unexpected, and oppositional meanings, as a way of "restaging the past." This emphasis on

hybridization demolishes forever the idea of subjectivity as stable, single, and pure, drawing attention instead to the ways in which subjugated people can challenge exclusionary systems of meaning and thus disrupt the exclusionary binary logics on which discourses of colonialism, nationalism, and patriarchy depend. It is this insight that has inspired much of the recent works in postcolonial history, literature, and the arts, seeking ways to interrupt and challenge colonial ways of thinking about the world.

However, in these works, hybridity is often valorized. While it is true that the postcolonial condition is underlined by much variability; multivocality; and the processes of fuzziness, cut and mix, crisscross, and crossovers, suggested by the idea of hybridity, it is also the case that the processes of cultural hybridization are never neutral but involve a politics expressing issues of economic and cultural power. A celebration of syncretism and hybridity always runs the risk of obscuring the scope of colonial violence, unless it is articulated along with a critical focus on the issues of hegemony and neocolonial power relations. So while, as a theoretical idea, hybridity is a useful antidote to cultural essentialism, it cannot in itself provide the answers to the difficult questions of how hybridity takes place, the form it takes in a particular context, the consequences it has for particular cultural groups, and when and how particular hybrid formations are progressive or regressive.

Broader Critiques of Postcolonial Theory

Broader criticisms of postcolonial theory relate to the ways in which it privileges discourse over "concrete" phenomena such as economic and social conditions that remain the major sources of oppression and marginalization. Dirlik (1994) has pointed out, for example, that Said, Bhabha, and Spivak draw too heavily on Western poststructuralist thought, which has conceded too much ground by questioning oppositional discourses such as nationalism and Marxism, precisely at a time when such discourses are most needed to combat conflicts around the world. Other critics have objected to the impression that postcolonial theory appears to give an end to colonialism, instead of focusing on its more contemporary forms. According to Ahmad (1995), "Speaking with virtually mindless pleasure of transnational cultural hybridity, and of politics of contingency, amounts in effect, to endorsing the cultural claims of the transnational capital itself" (p. 12). Ahmad thus accuses postcolonial theory of being complicit with global capitalism, since its focus on discourse masks the question of the ways in which capitalism continues to use racial differentiations to pursue its objectives.

Achievements of Postcolonial Theory

While some of these criticisms of postcolonial theory clearly have merit, postcolonialism's achievements cannot be denied. Perhaps its key achievement is the insistence on the cultural dimensions of colonialism. It has shown that far from being secondary to economic formations, culture must be viewed as essential to the production and maintenance of colonial relations. It has suggested how new analytical strategies are needed for understanding both economic and cultural politics of colonialism without reducing one to another. Without such strategies, it may not be possible to understand how contemporary social conditions, such as those characterized by globalization, for example, demand reference to the continuities and discontinuities of colonialism.

Postcolonial theory has the potential to help us understand how the persistence of global inequalities, and the threats to the continued existence of local cultures and traditions by the global consumerist culture, is anchored in the traditions of Western colonialism. New information and communication technologies have enabled instantaneous circulation of information, ideas, and images, making it possible to conceive of the world as a single space shared by all of humanity. However, the routes of this circulation are seldom symmetrical and equal. They are shaped by the history of colonial discourses. Postcolonial theory raises the question of the extent to which the so-called global culture has reproduced the colonial patterns of inequalities.

Another major achievement of postcolonial theory has been the account of the dialectical relationship between the colonizers and the colonized. It has shown how the colonizers not only shape the cultural representations of the colonized but are also, in turn, shaped by colonialism in a range of complex ways. Nor can the colonized be regarded simply as innocent bystanders in their encounters with the hegemonic processes of colonization. Postcolonialism refuses to treat the colonized as "cultural dupes," incapable of interpreting, accommodating, and resisting dominant discourses. And so it is with contemporary global relations, which necessarily involve negotiation of cultural messages, even if this occurs in spaces that are characterized by asymmetrical power relations. Postcolonial theory

points to the inherent dangers in the analyses of contemporary cultural practices, which are overdetermined by global capitalism and regard globalization as historically inevitable.

Postcolonial theory is helpful in understanding contemporary educational formations in a range of ways—for example, in articulating the relationship between globalization and education. Postcolonialism stresses the need to avoid the universalistic impulse at the core of many conceptions of this relationship. If most education occurs at the local level, then, it suggests that local practices are connected to historical legacies as well as emerging cultural forces. However, these forces do not simply exist in some abstract fashion to simply be "read off" for their implications for educational policy and governance. They need to be understood historically and relationally. It is only through this kind of complex understanding that it is possible to recognize new modes of colonial power and to devise ways of resisting them.

Fazal Rizvi

See also Anthropology of Education: Main Traditions and Issues; Globalization and World Society; Postmodernism; Racism and Multicultural Antiracist Education

Further Readings

Ahmad, A. (1995). The politics of literary postcolonialism. *Race & Class, 36*(3), 3–19.

Bhabha, H. (1994). *The location of culture.* London, England: Routledge.

Dirlik, A. (1994). The postcolonial aura: Third World criticism in the age of global capitalism. *Critical Inquiry, 20,* 348–367.

Loomba, A. (1998). *Colonialism/postcolonialism.* London, England: Routledge.

Said, E. W. (1979). *Orientalism.* London, England: Penguin Books.

Spivak, G. (1988). Can the subaltern speak? In C. Nelson & L. Grossberg (Eds.), *Marxism and the interpretation of culture* (pp. 271–313). Basingstoke, England: Macmillan.

Young, R. (2003). *Postcolonialism: A very short introduction.* Oxford, England: Oxford University Press.

COMENIUS, JOHANN AMOS

Johann Amos Comenius (in Czech, Jan Amos Komensky; 1592–1670) is among the most influential figures in the history of education. He lived during a century when revolutionary changes were taking place in Europe: on the one hand, a series of highly destructive wars (the "Thirty Years' War"), which basically changed the political balance, impoverished large areas for decades, and deepened the schism between religious denominations, and, on the other hand, the emergence of the modern world—the territorial state, the mercantilist economy and industrial production, and the modern sciences.

Comenius was raised in the community of the Bohemian Brethren, a Protestant movement within the Catholic Habsburg territories of Bohemia and Moravia, now incorporated into the modern Czech Republic. He studied theology, served as a minister and schoolteacher, and later on became bishop of the Brethren. Beyond that, he was highly engaged in realizing a vision of peace, unity, and order in a world that he perceived as a chaotic labyrinth—as he described it in his *Labyrint světa a ráj srdce* (*Labyrinth of the World and Paradise of the Heart*, 1631). In his magnum opus, *De rerum humanarum emendatione consultatio catholica* (*General Consultation on an Improvement of All Things Human,* 1666), he worked out a way to heal the sufferings of the world. At the center of this work, Comenius deals with efforts to create order in all things that are totally disordered (*pansophia*), in all thinking that is entirely confused (*panpaedia*, meaning "universal education"), and in all the languages that are totally discordant (*panglottia*). This structure corresponds strictly to Comenius's pivotal concern, namely, education and languages. Comenius's *Weltbild* (concept of the world), and thus his theology and his philosophy, was grounded in the tradition of the community of the Brethren and in the universal scientific discourse of his time. He tried to bring things together: to work out a *pansophia*, an ordered encyclopedia of all that mankind knows and has experienced and which is based on a Christian concept of the world.

Comenius was the first to successfully organize all the available knowledge that humankind had accumulated and to turn it to the didactic purpose indicated in the title of his famous *Didactica Magna* (*Great Didactic*). His famous textbook the *Orbis Sensualium Pictus*, a language-picture textbook, is a telling example of this and one of the classics of education. In this book, the world, the circle (*orbis*) of Creation, is expressed symbolically in words and pictures, with the words explaining the pictures and vice versa. Thus, the world becomes teachable.

Looking back on his life, and to the miserable state of the church and the schools in his mother country, Comenius wrote in 1657, "Before all we should help the youth and establish schools as soon as possible, and provide them with appropriate textbooks and a precise teaching method in order to put their academic, moral, and religious efforts on the right path." So in his *Great Didactic* (setting forth the whole art of teaching all things to all men), he outlined a vision of a comprehensive school system. In Greek and Latin, Comenius plays on a little word: *pan*—omnis—*all*, that comprises philosophy in its entirety and his vision of education in particular.

In the *Great Didactic*, Comenius (1657/1907) argues in a way that is representative of his pedagogical argument:

> Artisans are accustomed to fix certain limits of time for the training of an apprentice . . . , according to the case or difficulty of the trade. . . . The same system must be adopted in school organisation, and distinct periods of time must be mapped out for the acquirement of arts, sciences, and languages respectively. In this way we may cover the whole range of human knowledge within a certain number of years. . . . The process should begin in infancy and should continue until the age of manhood is reached; and this space of twenty-four years should be divided into well-defined spaces. In this we must follow the lead of nature.

Artisans, nature, and—if helpful—the Bible are referenced in all of Comenius's arguments. The latter source is, of course, traditional; the former indicate the influence of emerging modern philosophy and sciences. For Comenius, these references are closely linked as there is one and the same logic behind them: the theologic of God's creation and the destiny of the world.

In his time, Comenius's name as educator stood for his language textbooks. Nowadays, one can interpret those famous books as part of a tripartite unity of a sequence of

- comprehensive schools, one building on another according to the students' age, with
- corresponding textbooks that present the entire world according to the order of God's creation, and
- books that guide a teacher in how to introduce youths into the world they occupy, a *didactic*.

The System of Schools (*Omnes*—for All)

According to Comenius, the school system looks like this: "The whole . . . must be divided into four distinct grades: infancy, childhood, boyhood [*sic*], and youth." The schools should be *the mother's knee*, *the vernacular school* (our elementary school), *the Latin school or gymnasium*, and *the university and travel*—in every house, every village, every city, and every kingdom, respectively. This picture mirrors the schools of the 17th century in Europe. Comenius put things together into a system of comprehensive schools for all, which is theoretically consistent. This vision was far from being realized in his time; but the idea has encouraged educational reformers down to the present, particularly in countries with noncomprehensive school systems.

The Knowledge (*Omnia*—All Things)

In his lifetime, Comenius was famous for his textbooks or, more precisely, for his language books. Above all, his *Janua linguarum reserata* (*The Open[ed] Door to the Languages*) established his fame. The book's pattern has been well known through the centuries. In this textbook, as well as in all the others, the world is represented symbolically by means of languages, Latin being the lingua franca. (In particular, Comenius rendered outstanding services to the Czech language, his mother tongue.)

Comenius's idea was to elaborate one appropriate textbook for each of the types of school that he had outlined. The best known, even in our own day, is the *Orbis Sensualium Pictus* (*The World in So Far as We Can Conceive It With Our Senses*). This textbook was designed for the *mother school*, the school "for infancy that should be the mother's knee." In this book, Comenius represents the entire circle of the world, the *orbis*, in words and in pictures. A closer look into this primer discloses Comenius's didactic philosophy: First of all, his textbooks are more than mere dictionaries; rather, they tell stories about the world as it reveals itself to the human senses. These stories are about nature and human life, and they are embedded in a concept of what use to make of things and how to act humanely in human society. The introduction to his *Unum Necessarium* (*The One Thing Needful*) gives the principle of selection, composition, and presentation of things in all of his language-matter books—all "what every human really needs for this transitory life, under the guidance of sane senses and the word of God."

A second point to be made is that the manifold of human knowledge is ordered according to the lives of humans in this world, which prepares them for their eternal life. The *Orbis Pictus* is intended to be a persuasive demonstration of Comenius's basic philosophy, and it is therefore a key to the understanding of the bulk of his didactic writings:

- Its title could also be translated as "The *world as God's creation* in pictures."
- The content itself is framed according to a Christian *Weltbild:* The book begins with God and His Creation; the last picture is the Last Judgment.
- The entire matter in turn is explicitly framed didactically through an invitation ("Come boy, learn to be wise") and a *clausula* (conclusion: "Thus thou hast seen in short, all things, that can be shown, and hast learned the chief Words of the English [German, Czech etc.] and Latin Tongue. Go on now and read other good Books diligently, and thou shalt become learned, wise, and godly"). Furthermore, the corresponding pictures are identical, a fine example of the pictures' message.

The Method (*Omnino*—Throughout)

In the course of developing his didactic, Comenius first of all refers to the Bible and to the ancient philosophers and theologians. This way of arguing was an age-old practice and a sort of legitimation of his argument by recourse to generally accepted authorities. But when it came to the substance of his teachings, he followed the philosophical reasoning of his time—that of the emerging philosophy of the Enlightenment. In the words of René Descartes (with whom Comenius occasionally visited),

> I perceived it to be possible to arrive at knowledge highly useful in life; and . . . to discover a practical [philosophy], by means of which, knowing the force and action of fire, water, air, the stars, the heavens, . . . as distinctly as we know the various crafts of our artisans, we might also apply them in the same way to all the uses to which they are adapted, and thus render ourselves the lords and possessors of nature. (*Discourse on Method*, Part VI)

In this sense, Comenius's textbooks—for all schools or grades—were up to date for his times. But what is more, Comenius adopted as a theoretical foundation for education the method Descartes claimed for mathematics, biology, and the like.

Conclusion

Whosoever worked out a didactic after Comenius in a strict sense came to almost the same principles and practical advice we find in Comenius's works. A prominent example is the Latin maxim *repetitio est mater studiorum* ("repetition is the mother of study"), which has been repeated in one form or another down to the present day. But the underlying *Weltbild* differs: Soon after Comenius, the theological one was replaced with the concept of Enlightenment.

So, for example, in Johann Bernhard Basedow's famous *Elementary Work* (1787), the matter is anthropocentrically organized; its copper plates–engraved illustrations follow a human's path from birth to death instead of presenting the history of the salvation of mankind. Furthermore, it is not the "world" as such that the *Orbis Pictus* and Comenius's other textbooks represent symbolically. It is rather the world of the Brethren, the world as seen with the eyes of a prominent member of that proto-bourgeois community. (Schoolbooks generally represent the specific *Weltbild* of a given society.) The didactic maxims are alike over the centuries, for they are always about teaching and learning. Nevertheless, there is a lesson didacticians have learned from Comenius and still can learn nowadays: Didactical reasoning and practical advice make sense only if grounded in a concept of human destiny.

Peter Menck

See also Pestalozzi, Johann H.; Rousseau, Jean-Jacques

Further Readings

Atwood, C. C. (2009). *The theology of the Czech Brethren from Hus to Comenius*. University Park: Pennsylvania State University Press.

Comenius, J. A. (1657). *Opera Didactica Omnia* [Complete didactical works]. Retrieved from http://www.uni-mannheim.de/mateo/camenaref/comenius/comenius1/p1/jpg/s001.html

Comenius, J. A. (1658). *Orbis Sensulalium Pictus* [Visible world in pictures]. Retrieved from http://books.google.co.uk/books?id=yp8AAAAAYAAJ&prin

tsec=frontcover&hl=de&source=gbs_ge_summary_r&
cad=0#v=onepage&q&f=false (in English) and http://
digi.ub.uni-heidelberg.de/diglit/comenius1698 (for
original text and pictures)

Comenius, J. A. (1907). *The Great Didactic of John Amos
Comenius* (M. V. Keatinge, Ed.). London, England: A &
C Black. Retrieved from http://archive.org/stream/
cu31924031053709#page/n7/mode/2up (Original work
published 1657)

Murphy, D. (1995). *Comenius: A critical reassessment of
his life and work*. Dublin, Ireland: Irish Academic Press.

COMMON CURRICULUM

The idea of a common curriculum is best grasped by contrast with differentiated, selective, or alternative curricula. Generally, differentiated curricula are grounded in the contingent personal, social, or other local circumstances of learners. Perhaps, the most famous defense of a selective or differentiated curriculum is to be found in Plato's *Republic*, where this philosopher distinguishes between persons of gold, silver, and bronze who are fitted by natural ability—and correspondingly appropriate education—to be, respectively, the ruling legislators (guardians), the administrators (auxiliaries), and the ruled workers of his ideal society. A well-known advocate for a common curriculum, on the other hand, was Mortimer Adler in the United States, who argued in the 1980s that the best education for the "best" in society was the best education for all—all students should embark on the same curriculum, although some would not progress as rapidly or as far as others. This common curriculum was a heavily academic one and represented—as Michael Apple put it—the "official knowledge" endorsed by a particular social class, the ruling elite. This entry first reviews the evolution of the common curriculum and then examines the philosophical assumptions that underlie it.

The idea that the educational course of study should not be uniform, but vary according to individual ability and/or social need, was historically influential; in Britain, for example, it was writ large in the 1944 Education Act, which assigned pupils, on the basis of examinations at age 11, to different sorts of academic (grammar) and vocational (secondary) schooling according to their "abilities and aptitudes." However, by the 1960s, such educational apartheid was widely seen as individually and socially unjust and divisive, and there was a major political shift in the United Kingdom toward abolition of the selective "11+" examination and the establishment of the so-called comprehensive schooling for all. In the United States, the situation was different; development of comprehensive high schools allowed a diverse range of options to appear on the curriculum—a "cafeteria" type of situation that arguably led to Adler's reaction in favor of a common curriculum and, eventually, culminated in the movement in the 21st century for common or core curriculum standards.

Eventually, experience with comprehensive schools in Britain led in the same direction. Although widespread, the shift to comprehensive schooling in the United Kingdom was not immediately attended by curriculum change—pupils of different ability largely pursued more or less distinct and separate courses of academic and vocational studies under the new comprehensive school roof. And so curriculum theorists and policymakers were drawn toward revision of such segregated courses in favor of a new comprehensive curriculum that might be pursued in common by *all* pupils (without "special needs"). From a philosophical viewpoint, however, it was clear that any such curriculum would need to be grounded in some defensible conception of common educational need that transcended the contingencies of individual psychological difference (of interest or ability) or local social convenience. The remainder of this entry will focus on the interesting philosophical arguments that emerged.

Despite widespread approval of comprehensive education in the name of justice and equality, it could not be fair to subject all pupils to the same educational treatment, if such equal treatment was more appropriate to some than others. Thus, the pressing question for curriculum theorists was that of finding a defensible rationale for common educational provision for pupils of widely varying intellectual range and socioeconomic status and background.

It was in the context of nascent comprehensive schooling in the United Kingdom that a number of postwar British educational philosophers—broadly located in an educational tradition harking back to 19th-century liberal educationalists such as Matthew Arnold and mostly located in the London Institute of Education—developed a view of education focused on the acquisition of a range of forms of knowledge and understanding held to be constitutive of a rational human mind. (It is interesting that a literature of similar complexity and sophistication did not emerge among philosophers of education in the United States, although political theorists such as Michael

Apple were quite prolific.) While the basic idea was pioneered by Louis Arnaud Reid (first incumbent of the chair of philosophy of education at the London Institute) in a book titled *Ways of Understanding and Education*, the notion was further developed by Paul Hirst in his widely influential paper "Liberal Education and the Nature of Knowledge" and given more practical curricular application by John P. White in his book *Towards a Compulsory Curriculum*. To be sure, such authors did not agree on all points, and there were parallel—and variable—developments of this general theoretical trend in other countries; but there was clearly enough common ground here to distinguish such thinking about a common curriculum from previous tendencies toward segregated and differentiated curricula.

To begin with, the basis of most, if not all, of such theorizing was *epistemological* rather than psychological, sociological, or political: It began from reflection on the nature and value of *knowledge* as the key goal of educational endeavor. In this light, the mind-constitutive forms of knowledge were to be regarded as of *intrinsic* more than extrinsic educational value; the (much misunderstood) point here is that if education is broadly construed as the development of rational minds, then the forms of knowledge are not mere *means to* education, they are what we *mean by* education. But then, all school pupils (apart from those with serious learning difficulties) should be considered equally entitled to educational exposure to the forms of knowledge and understanding required for the development of their rational mind.

It is crucial here to distinguish the epistemic notions of rationality and knowledge from the psychological notions of intelligence and ability—since, to be sure, agents may be intelligent but not very rational, or vice versa. On this view, it is not the job of education or schools to increase or develop intelligence (whatever that might mean); rather, it is to help all pupils acquire—to the best of their given abilities—those rational forms of knowledge and understanding whereby they may make meaningful sense of their world. According to Hirst and others, this would require some initiation of *all* pupils into the time-honored forms of human knowledge and understanding enshrined in scientific studies, logic and mathematics, human sciences, moral inquiry, artistic and aesthetic appreciation, and religious and philosophical studies. The first significant British (if not global) attempt to develop a new common curriculum for the comprehensive school, drawing explicitly on Hirst's forms of knowledge, was

outlined in the Scottish Munn Report in 1977 and thereafter implemented in Scottish schooling in the form of the "Standard Grade" curriculum. Common curricula conceived broadly along these lines have since been developed in England and other countries.

Although much discussion of common curricula has focused on the pros and cons of a "common *compulsory* curriculum"—reflecting the fact that many, if not most, of latter-day common curricular developments (e.g., in the United Kingdom and the United States) have been subject to state mandate as "national curricula"—the philosophical issue of whether a common curriculum is educationally defensible and the political issue of whether it should be nationally or otherwise compelled are in principle separable issues. That said, it is not hard to see how philosophical commitment to the idea that *all* children are entitled to a common (at least core) educational experience has invariably led, for good or worse, to political efforts to secure such entitlement through state legislation.

David Carr

See also Apple, Michael; Continental/Analytic Divide in Philosophy of Education; Cultural Literacy and Core Knowledge/Skills; Dewey, John; Knowledge, Structure of: From Aristotle to Bruner and Hirst; Peters, R. S.; Plato; Scheffler, Israel; Wittgenstein, Ludwig

Further Readings

Bantock, G. H. (1973). Towards a theory of popular education. In R. Hooper (Ed.), *The curriculum: Context, design and development* (pp. 251–264). Edinburgh, Scotland: Oliver & Boyd.

Hirst, P. H. (1974). Liberal education and the nature of knowledge. In *Knowledge and the curriculum* (pp. 30–53). London, England: Routledge & Kegan Paul.

Phillips, D. C. (1998). Epistemology, politics and curriculum construction. In D. Carr (Ed.), *Education, knowledge and truth: Beyond the postmodern impasse* (pp. 159–174). London, England: Routledge.

Plato. (1961). *The republic*. In E. Hamilton & H. Cairns (Eds.), *Plato: The collected dialogues* (pp. 557–844). Princeton, NJ: Princeton University Press.

Reid, L. A. (1986). *Ways of understanding and education*. London, England: Heinemann.

Scottish Education Department. (1977). *The structure of the curriculum in the third and fourth years of the secondary school*. Edinburgh, Scotland: Her Majesty's Stationery Office.

Simon, B. (1986). The 1944 Education Act: A conservative measure? *History of Education, 15*(1), 31–43.

White, J. P. (1973). The curriculum mongers. In R. Hooper (Ed.), *The curriculum: Context, design and development* (pp. 273–280). Edinburgh, Scotland: Oliver & Boyd.

White, J. P. (1975). *Towards a compulsory curriculum.* London, England: Routledge & Kegan Paul.

COMMON SCHOOL MOVEMENT

See Schooling in the United States: Historical Analyses

COMMUNICATIVE ACTION

See Critical Theory

COMMUNITARIANISM

Communitarianism can be considered as being a thesis about the social construction of the self; that is, the individual self cannot be understood as separate from the social relations in which it is situated. For communitarians as diverse as Jürgen Habermas, Seyla Benhabib, Amy Gutmann, Iris Marion Young, Martha Nussbaum, Stanley Cavell, Eamonn Callan, and Jacques Derrida, individuals produce—and engage in—social practices and public institutions in which they collectively and deliberatively advance their own aspirations, values, and reasons. To the degree that educational theory and philosophy subscribes to a notion of education that in the Aristotelian sense refers to a social practice of reasoning together, an understanding of communitarianism that emphasizes the constitution of the self and its situatedness in social relations is called for. In this entry, congruent with the views of the aforementioned communitarians, three conceptions of communitarianism—conservative, radical, and pluralist—are first explained, in conjunction with the notion of education as a practice. Concurrently, education is examined as a practice embodying communitarian ideals such as public deliberation, responsibility, and disruption.

Conservative Communitarianism

First, conservative communitarianism accentuates communal inclusiveness and solidarity among people on the grounds that the social or cultural groups in which people grow and live share a common language, history, culture, identity, and ethnicity. Considering that such a form of communitarianism is associated with a patriotic loyalty to the group, educative relations have the potential to foster uncritical or unchallenged allegiance to the views of the group or community. Often, such relations are characterized by a relative lack of reflective thinking, and at times blind imitation, resulting in overzealous and dogmatic political and social action.

Radical Communitarianism

Second, radical communitarianism advances the view that communal relations are engendered on the basis of both equality and autonomy. On the one hand, each member of the community enjoys equal status on the grounds that all persons have an equal right to speak and to be listened to, irrespective of the fact that one member of the community may be considered to be more capable than another. On the other hand, in an autonomous, self-determined way, community members aspire to achieve—collectively—their political, social, and economic aspirations, without necessarily undermining the autonomous choices of individuals.

Pluralist Communitarianism

Third, pluralist communitarianism—the focus of this entry—has in mind the cultivation of public deliberation in what has been called an atmosphere of disruption. Whereas conservative and radical communitarianism both place a high premium on patriotism to the group as well as on equality and autonomy, pluralist communitarianism emphasizes public deliberation in disruptive ways that create opportunities to invoke the potentialities of individual members of the community. It is held that when people engage in public deliberation, they listen attentively to what others have to say and then respond so that all views are reasonably considered by one and all without repudiating the rights of anyone to be heard. Individuals can alter the conversation through modifying or adjusting views on the basis of more defensible justifications. In a way, pluralist communitarianism fosters a distinct conception of education that has democratic ideals and can be cultivated through at least three interrelated practices: (1) public deliberation, (2) responsibility toward the other,

and (3) (as will later be explained) disruption of the democratic order.

The Role of Public Deliberation

The first group of pluralist communitarians, namely, Habermas, Benhabib, and Gutmann, has in mind the use of public deliberation to guide educational practices. Public deliberation is aimed at empowering individuals to determine their rules of collective engagement and their cooperative living together through rational decision making based on a reflexive consensus. Through public deliberation, people offer reasons to justify their points of view, while being ready to listen to what others have to say in the quest to achieve agreement based on argumentation, persuasion, and the exercise of unconstrained freedom of articulation—except, as aptly stated by Gutmann (2003), when an injustice to others is being perpetrated (p. 47). Thus, when people embark on public deliberation, they endeavor to establish educational practices based on the construction of more reasonable views that others might find more palatable and through which people can together make modifications and adjustments to arguments that prevail. Hence, public deliberation considers argumentation, persuasion, and consensus making as reasonable endeavors to pursue in search of justifications that enjoy the support of an association of individuals as they embark on educational practices.

More specifically, on the one hand, Habermas's (1996) notion of public deliberation involves intersubjective communicative processes aimed at securing compromises, consensus, or fair bargaining based on a preponderance of "the better arguments" (p. 24). However, such a view of public deliberation presupposes that everyone is eloquent and capable enough of producing these better arguments. But of course, this is not necessarily the case. One may find that some people hold more persuasive views than others (who might not be able to articulate their cases eloquently and convincingly). On the other hand, Benhabib's (1996) notion of public deliberation is underscored by a condition of reflexivity whereby the outcome of deliberation is not fixed but can be revised and subjected to reexamination—that is, debated, questioned, and criticized (p. 72). In this way, even the consensus attained should not be considered as the conclusive outcome of deliberation, but rather, it should be seen as a temporary consensus until more reasonable judgments have been

attained. Such a reflexive account of public deliberation would not silence or curtail dissenting minority viewpoints that a strictly consensus-oriented approach to public deliberation might dismiss. By implication, even "the best arguments" should be subjected to revision and reexamination, perhaps at a later stage; therefore, the outcome of deliberation is considered as an interim consensus until more reasonable opinions and preferences could confirm or overturn previously held views.

Relationships Based on Shared Humanity

The second group of pluralist communitarians, namely, Young, Nussbaum, and Cavell, offer an account of communitarianism that connects people on the basis of their humanity. One belongs to a particular group, and by virtue of being human, one bears an internal (organic or holistic) relation to all other human beings—especially those who might not belong to the same group as oneself. This internal relation with one's fellow human beings does not allow an individual to shed responsibility for what happens to others, even though they belong to a different social group.

Whereas Young establishes an internal relation among people on the basis of narratives about themselves that they exchange, Nussbaum considers such an internal relation to be based on the recognition of each other's vulnerability—that is, the putting of oneself in the shoes of others and actually doing something about changing their condition of vulnerability. As a member of a particular cultural group in society, one cannot just impose one's views (albeit religious or political) on others, for that in itself would deny that there are people in different positions (with different cultural orientations) than oneself. Doing so would be doing an injustice to others. Being responsible for what happens to them means that their views are acknowledged, even though one might not be in agreement with them. In short, one conceives the other from the other's point of view.

Pedagogically speaking, in demonstrating one's responsibility toward others in the manner described by Cavell, one immediately acknowledges one's capacity for intimacy with others—thus, limiting one's own idiosyncratic privacy. Thus, our private actions may lead to a betterment of our communal actions. One might privately contemplate doing something about improving human relations among people, but doing so autonomously without also penetrating the thoughts of other community

members may not necessarily contribute to achieving this goal. If one's privacy remains restricted to oneself, with the intention not to exercise responsibility to others, then one's practices would remain unshared and separated from the people with whom one happens to live. On the other hand, one's privacy opens a door through which someone else can tap into one's thoughts—which might be of benefit to society; but if this privacy is prompted by narcissism, the possibility that others might gain something valuable for the good of society could be circumvented. If one were to think about social practices in a balanced way, one should acknowledge the private efforts of individuals yet simultaneously recognize the possibility that their private actions can be of good public use.

Valuing Acts of Disruption

The third of a group of pluralist communitarians, represented by philosophers as diverse as Callan and Derrida, make a cogent case for acts of disruption in educational discourses. On the one hand, Callan's case for public deliberation characterizes the distress and belligerence of confrontation (i.e., a process of struggle) as moral truth is pieced together from the fragmentary insights of conflicting viewpoints. Whereas Habermas, Benhabib, and Gutmann view public deliberation as a mutually responsive act of engagement without belligerent contestation, Callan (1997) invokes ethical confrontation as constitutive of deliberation. For him, public deliberation is not an attempt "to achieve dialogical victory over our adversaries but rather the attempt to find and enact terms of political coexistence that we and they can reasonably endorse as morally acceptable" (p. 215). Through public deliberation, participants raise doubts about the correctness of the moral beliefs of each other, or about the importance of the differences between what they and others believe (a matter of arousing distress), accompanied by a rough process of struggle and ethical confrontation—that is, belligerence (p. 211). If this is what happens, belligerence and distress give way eventually to moments of ethical conciliation, when the truth and error in rival positions have been made clear and a fitting synthesis of factional viewpoints is achieved. This is an idea of public deliberation, where no one has the right to silence dissent and where participants can speak their minds. Thus, Callan's view of public deliberation is one of taking risks and being offensive, of causing disruption.

(In light of this, it can be seen that some educators listening compassionately to students' narratives are culpable in that they steer the conversation so that the focus is on who the students are and not on the substance of what they have to say.)

On the other hand, Derrida's (2004) take on pluralist communitarianism can be explained by reference to his understanding of a "community of thinking" in the context of the university. Such a community would go beyond the "profound and the radical," and its enactment is "always risky; it always risks the worst" (p. 153). A "community of thinking" that goes "beyond" with the intention of taking more risks would become more attentive to unimagined possibilities, unexpected encounters, and perhaps to "the lucky find." Risky efforts on the part of academics and students would enhance the possibility of highly contemplative and theoretical contributions that go beyond practical usefulness and provide us with more to know than any other instrumentalist form of action (p. 130). Here, one is reminded of the need for risky intellectual contributions in educational practices, which might address the sporadic outbursts of violence and perpetual conflict in modern society. In a way, a "community of thinking" demands that reasons are rendered, encourages risk taking, and contributes toward renewal. In quite a disruptive fashion, a "community of thinking" allows us to take more risks, to deal openly with the radical incommensurability of the language games that constitute our society, and invites new possibilities to emerge—that is, a "community of thinking" cultivates a kind of thinking innately concerned with creating possibilities for dissent—a diversity of interpretations—complicating the taken for granted and opening up to the other.

Implications for Education

Finally, pluralist communitarianism offers a more positive way to think about education than do the conservative and radical views. Education as a democratic encounter requires both educators and students to act authoritatively whereby they both disrupt the pedagogical practices. That is, an educator acts authoritatively when she creates learning opportunities for students in terms of which they can play a role in interrupting the chain of reasons and consequences—causes and effects—that shape their learning. And learners are authoritative when they are enabled to create new forms of learning and to discover modes of action to make things happen.

By engaging in critique, the students have an equal ability to speak, understand, and redefine the practice of education in pursuit of making it a robust pedagogical encounter—that is, an encounter that has pluralist communitarian expectations.

Yusef Waghid

See also Citizenship and Civic Education; Democratic Theory of Education; Liberalism; Neoliberalism; Patriotism

Further Readings

Benhabib, S. (1996). Toward a deliberative model of democratic legitimacy. In S. Benhabib (Ed.), *Democracy and difference: Contesting the boundaries of the political* (pp. 67–94). Princeton, NJ: Princeton University Press.

Callan, E. (1997). *Creating citizens: Political education and liberal democracy.* Oxford, England: Oxford University Press.

Cavell, S. (1979). *The claim of reason: Wittgenstein, skepticism, morality, and tragedy.* Oxford, England: Clarendon Press.

Derrida, J. (2004). *Eyes of the university: Right to philosophy 2* (J. Plug & others, Trans.). Stanford, CA: Stanford University Press.

Gutmann, A. (2003). *Identity in democracy.* Princeton, NJ: Princeton University Press.

Habermas, J. (1996). Three normative models of democracy. In S. Benhabib (Ed.), *Democracy and difference: Contesting the boundaries of the political* (pp. 21–30). Princeton, NJ: Princeton University Press.

Nussbaum, M. (2001). *Upheavals of thought: The intelligence of emotions.* Cambridge, England: Cambridge University Press.

Young, I. M. (2000). *Inclusion and democracy.* Oxford, England: Oxford University Press.

COMMUNITIES OF LEARNERS

The phrase *community of learners* is associated with a theoretical perspective on learning that, according to Barbara Rogoff (1994), "takes as a central premise the idea that learning and development occur as people participate in the sociocultural activities of their community" (p. 209), and with a broader pedagogical reform effort designed to transform K–8 classrooms into sites of deep thinking and authentic collaborative inquiry. Proponents of this reform agenda (see Bielaczyc, Kapur, & Collins, 2013) argued that traditional academic approaches—narrow

tasks that emphasize memorization or the application of simple algorithms—will not develop students who are critical thinkers or students who can reason, write, and speak effectively. Instead, to develop these higher-order skills, students need to take part in complex, meaningful projects that require sustained engagement, the development of subject matter expertise, collaboration, research, management of resources, and the completion of an ambitious performance or product. This entry discusses the influential Fostering Communities of Learners (FCL) project designed by Ann Brown and Joe Campione (1994), which is widely regarded as a model program for fostering such skills in students. An outline of the program and its theoretical grounding in "first principles of learning" is followed by a description of its implementation in the classroom through a variety of student activities. The entry concludes with a brief critique of the program's general applicability for curriculum design.

FCL Content and Teaching Strategy

The content in FCL introduced K–8th grade learners to key ideas in the life sciences: biodiversity, adaptation, evolution, species survival, and interdependence. The social life of the classroom-learning community was organized to foreground scientific dilemmas and uncertainties and to hand over intellectual authority for making sense of these to students through research, debate, reading, and writing.

Although it was the application of FCL that was recognized for its significance, Brown (1997) saw the project as having a dual focus on learning theory and practice. For her, the classroom was a living lab and only one site for her research program, which was organized to develop a theoretical model of learning and instruction, rooted in empirical data. Some of her influential earlier work was focused on the topic of metacognition—that is, the capacity to think about one's own thinking and to intentionally apply strategies to improve learning. Her basic studies of reading comprehension with her student Anne Marie Palincsar eventually became the basis for a core instructional strategy in FCL: reciprocal teaching, discussed further below (Palincsar & Brown, 1984). The development of metacognitive capacity and repertoires of learning strategies were basic to the FCL model. They ultimately sought to develop "intelligent novices" who were lifelong learners prepared to develop expertise on an issue as needed.

Theoretical Grounding in Learning Principles

FCL is based on a set of "first principles of learning." Reflective of the interdisciplinary field of the learning sciences, these principles were grounded in contemporary social, cognitive, and developmental psychological research, as well as perspectives from sociology, linguistics, sociocultural theory, and the philosophical and pedagogical ideals behind early renditions of project-based learning. Brown (1997) articulated six learning principles:

1. The importance of agency or learners, efforts to attain understanding through dialogue

2. The benefit of collaborative learning arrangements that distribute expertise and foster interdependence

3. The importance of reflection encouraged by an intentionally metacognitive environment

4. A culture of learning that values negotiating ideas and contributing to the classroom community and beyond

5. Designs crafted around developmental corridors of understanding that are supported by a spiraled curriculum that revisits topics over years to advance learners' competencies for reasoning about complex topics in particular domains

6. Lev Vygotsky's (1978) concept of the zone of proximal development (ZPD), or the difference between what a child could accomplish alone versus with the help of others, was another core idea that helped organize FCL classrooms. FCL classrooms were conceptualized as being constituted by multiple overlapping zones of proximal development that included not only adults with more expertise but also peers, books, videos, visual representations, and computing tools. Learning within a zone of proximal development is characterized as a process of appropriation in which learners come to take on independently those activities and strategies that were initially supported by social and material resources.

The articulation of first principles was intended to help avoid a phenomenon captured in the phrase *lethal mutations*, in which teachers apply instructional routines in a procedural way, distorting the original goals that these were designed to promote. At the same time, the research and design team were aware of the importance of systematically studying and redesigning teaching routines that mapped onto these principles and could be generalized to other content. Thus, the FCL instantiations of "first principles" were continually revised based on findings from the lab and from classroom design experiments (Brown, 1992), a methodological approach pioneered by the FCL team and their colleagues for advancing both theory and practice. Significant gains in reading comprehensions, generation of analogies, and content knowledge were documented (Brown, 1997), and collective knowledge-building practices evolved through observational and comparative studies. The program of research on FCL continued after the unexpected death of Brown in 1999. One set of studies culminated in a situated account of transfer (Engle & Conant, 2002). This work focused on classroom interactions and explored the hypothesis that transfer would be related to whether teachers framed learning as temporally linked to past and future contexts and whether they framed students' contributions as relevant to a broader community of people interested in the same topics. This interactional approach to studying FCL relied on video records collected in classrooms years before and demonstrates the potential of design experiments to continue to yield theoretical insights about the nature of learning over time. Other work in the FCL tradition focused on teacher learning.

Engineering a Community of Learners in the Classroom

The FCL first principles were brought to life in the classroom through an interconnected system of student activities that followed a tripartite cycle of research or inquiry, teaching others what was learned through research and culminating with the completion of a consequential task to represent the synthesis of group work. In a typical FCL unit, student groups would choose an animal species to focus on, and then individual group members would each take on one of the core disciplinary ideas to develop expertise around it in a process called *majoring* in the FCL terminology. For example, in a unit on endangered species, group members focused on mechanisms related to survival, including protection from predators, acquisition of food, and reproduction (Engle, 2006). Within the broader research–teach–synthesize cycle, participation structures for collaborative groups and lesson formats/

routines were designed to support the deeper goals of engaging learners in dialogue and complex reasoning. *Benchmark lessons*, for example, were whole-class activities where the teacher shared new content. *Cross-talk* sessions involved whole-class dialogues in which debates and differing perspectives could be articulated. *Research rotations* were organized for small groups to engage in collaborative sessions to co-comprehend texts or use the computer to do research. *Jigsaw* activities required learners to share their particular content expertise with group members, and then groups would recombine to share species-specific knowledge with other groups. The culminating projects were designed to motivate yet a deeper level of understanding. Students were expected to present their work to an audience—to groups of visitors, parents, and other students. These presentations were in the service of the metacognitive goals central to FCL, as described by Brown (1994): "Audiences demand coherence, push for high levels of understanding, require satisfactory explanations, request clarification of obscure points. . . . There are deadlines, discipline, and most important, reflection on performance" (p. 8). Presentations of work also signal to students that their work is important enough to be a source of public learning and celebration and provide opportunities for others in the learning community to see, appreciate, and learn from student work.

Challenges and Controversies

Although considered a model of a theoretically grounded curriculum, the FCL project also has its critics. One concern centers on the text-based nature of the inquiry work. Given Brown's prior focus on metacognition in the context of reading comprehension, this emphasis is not surprising. However, many science educators favor experiential approaches that have learners design and carry out investigations in the natural world. A second concern is that FCL is not easy for teachers to implement or adapt for their own content. The curriculum design requires domains that can be subdivided into subtopics that have interdependent relations and are "jigsawable." A third challenge stems from concerns about whether first principles are a useful way to describe and disseminate novel pedagogies. This critique arose in part from an ambitious project, funded by the Mellon Foundation, that brought FCL together with two other leading reform efforts in a project called Schools for Thought (see Lamon et al., 1996).

The goal of this effort was to create a synergistic model that could transform an entire curriculum. This unique collaboration raised a number of questions as researchers in each site tried to implement their colleagues' ideas. They found that the first principles were subject to multiple interpretations. Despite these critiques, the FCL has been the basis of numerous curriculum efforts spanning mathematics, science, and language arts and remains a preeminent example of a theoretically and empirically grounded instructional approach.

Brigid Barron

See also Design Experiments; Dewey, John; Learning, Theories of; Transfer of Learning; Vygotsky, Lev

Further Readings

Bielaczyc, K., Kapur, M., & Collins, A. (2013). Cultivating a community of learners in K–12 classrooms. In C. E. Hmelo-Silver, A. M. O'Donnell, C. A. Chinn, & C. Chan (Eds.), *International handbook of collaborative learning* (pp. 233–249). New York, NY: Routledge.

Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *Journal of Learning Sciences, 2*(2), 141–178.

Brown, A. L. (1994). The advancement of learning. *Educational Researcher, 23*(8), 4–12.

Brown, A. L. (1997). Transforming schools into communities of thinking and learning about serious matters. *American Psychologist, 52*(4), 399–413.

Brown, A. L., & Campione, J. C. (1994). Guided discovery in a community of learners. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 229–270). Cambridge, MA: MIT Press/Bradford Books.

Engle, R. A. (2006). Framing interactions to foster generative learning: A situative explanation of transfer in a community of learners classroom. *Journal of the Learning Sciences, 15*(4), 451–498.

Engle, R. A., & Conant, F. C. (2002). Guiding principles for fostering productive disciplinary engagement: Explaining an emergent argument in a community of learners classroom. *Cognition and Instruction, 20*(4), 399–483.

Lamon, M., Secules, T., Petrosino, A. J., Hackett, R., Bransford, J. D., & Goldman, S. R. (1996). Schools for thought: Overview of the project and lessons learned from one of the sites. In L. Schauble & R. Glaser (Eds.), *Innovation in learning: New environments for education* (pp. 243–289). Mahwah, NJ: Lawrence Erlbaum.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and monitoring activities. *Cognition and Instruction, 1*(2), 117–175.

Rogoff, B. (1994). Developing understanding of the idea of communities of learners. *Mind, Culture, and Activity, 1*(4), 209–229.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. & Trans.). Cambridge, MA: Harvard University Press.

COMPETENCE

Although the term had been used in the fields of sociology, literary criticism, and linguistics, it was not until the 1980s that *competence* entered the educational lexicon, chiefly as a result of its employment in the competence-based education and training (CBET) system, which underpinned the reform of vocational qualifications in the United Kingdom led by the National Council for Vocational Qualifications (NCVQ). In terms of its standard denotation, competence is normally connected with the satisfaction of certain criteria of action, thought, or behavior: the performance of an act or process according to generally accepted standards or evaluation principles. It is in this sense that we might speak of a competent plumber who is able to install relatively problem-free sinks or central heating systems, a competent chess player or athlete who succeeds in a good many of the games played or events entered, or a competent scientist who has a reasonably good record in terms of papers published or funding applications granted.

Although competence can theoretically refer to a person's potential capacity, its primary characteristics connect it squarely with the outcomes of action and behavior, with what a person has actually done or demonstrated when judged by certain standards. An accompanying feature is the implication that achieving competence in any particular domain may not be the highest form of accomplishment possible. This observation brings in some of the more negative connotations of the concept. In addition to the fact that, as Terry Hyland's critiques over the past few decades have argued, there are a good many categorically different definitions of competence in the literature—as well as a systematic confusion between *competence* (as a capacity, applying to persons) and *competency* (as a disposition, applied to specific abilities, skills, or activities)—there is a strange ambiguity about the term. Although competence is generally a term of approbation, it also carries with it minimalist characteristics. Dictionary definitions that include synonyms such as *adequate*, *sufficient*, and *suitable* tend to confirm the idea that describing a person as being a competent doctor, electrician, teacher, or golfer is, perhaps, not the highest form of praise for or evaluation of that person's abilities or achievements.

The minimalist connotations are exhibited in a number of ways. The overwhelmingly predominant employment of "competence-speak" is in the area of vocational education and training (VET), especially the utilization of CBET in the introduction of national vocational qualifications (NVQs) by the NCVQ. Gilbert Jessup, the erstwhile director of research for the NCVQ, was only too aware of the "basic minimum" overtones of the central concept of competence and attempted to counter this by asserting that competence did not refer to a basic minimum level of performance but to the standard required to perform an occupational function. But such special pleading did little to answer the suggestion that perhaps such a standard was not the highest one possible. For example, in a number of widely used models of professional/occupational development, competence is only approximately a halfway stage on the journey people make from the status of novice to that of expert. Thus, competence does not seem to be the most appropriate foundation on which to build a whole system of education and training and, at this level, is arguably as fatuous and nebulous as its ubiquitous sister term, *skill*.

Competence and Vocational Education

The chief reason that competence is of any interest to educators is, without doubt, its widespread employment in the field of VET, especially in the development of NVQs in the United Kingdom. Following the U.K. experience in the 1980s, CBET systems were introduced in countries around the world in the hope of finding quick-fix solutions to the difficult challenges of neoliberal economics and post-Fordist industrial restructuring. The results have generally been disappointing. In the survey of the implementation of CBET systems in countries around the world edited by Antonio Arguelles and Andrew Gonczi, the editors concluded that CBET did not satisfy the requirements for innovative skill development in industrial and professional contexts and that its educational foundations were shaky. In the United Kingdom, the NCVQ was abolished in

1997, general NVQs were phased out in 2008, and, although NVQs still operate in specific spheres of workplace learning, they no longer have such a central place either in apprenticeship schemes or VET in general. A number of recent reports on vocational education in Britain have indicated that competence qualifications do not meet the demands of employers or students, and apprenticeships in particular have a more general educational foundation now.

Weaknesses of CBET

The demise of the competence model is due to a number of educational difficulties with CBET. In addition to the logical and linguistic problems noted above, there is epistemological confusion concerning the relationship between competence and knowledge, theory and practice, and knowing-how and knowing-that. Since there is an insistence that CBET measures only performance outcomes, knowledge thus comes to serve a purely instrumental purpose: It is only valuable if it gives rise to measurable performance outcomes. Such a devaluing of knowledge and understanding—conjoined with the marginalization of moral and affective objectives in competence systems—tends to downgrade VET, as a number of critical studies and national surveys have pointed out over the years. Moreover, the obsession with product and neglect of process is underpinned by a behaviorist thrust that is at odds with contemporary developments in education—and also in craft apprenticeships—which foreground autonomous and independent learning.

Conclusion

The logically imprecise, epistemologically confused, and behaviorist foundation of CBET serves to rule out its widespread adoption by educators and policymakers concerned with autonomous student learning and a liberal education as outlined by R. S. Peters, which is connected with the development of knowledge, understanding, and values. The education of the whole person—especially in that broad conception of vocational studies informed by John Dewey's philosophy—requires rather more than the satisfaction of performance criteria in the pursuit of competence outcomes.

Terry Hyland

See also Behaviorism; Dewey, John; Education, Concept of; Liberal Education: Overview; Peters, R. S.; Vocational Education

Further Readings

Arguelles, A., & Gonczi, A. (Eds.). (2000). *Competency based education and training: A world perspective.* Mexico City, Mexico: Conalep/Noriega.

Barnett, R. (1994). *The limits of competence: Knowledge, higher education and society.* Buckingham, England: Open University Press.

Hyland, T. (1994). *Competence, education and NVQs: Dissenting perspectives.* London, England: Cassell.

Winch, C., & Hyland, T. (2007). *Guide to vocational education and training.* London, England: Continuum.

COMPLEXITY THEORY

A simple example of complex behavior is a group of birds in flight, flocking together in a beautiful unfolding pattern. Fascination with complex behavior is as old as civilization, but progress in understanding it theoretically has been slow. From the scientific revolution of the 17th century until recently, scientists assumed that natural systems could be simplified and approached by linear methods. Differential and integral calculus focus in on small segments of curves to reduce them to lines. The dominant analytical paradigm has prevailed because of the availability of methods of linear analysis, not because of any deeply argued conclusions about nature.

Complex systems, however, are nonlinear. Progress in understanding them was made in the 20th century owing to mathematical advances in nonlinear dynamics and to computers that were able to make complicated calculations and simulate complex processes. Studies of complexity and self-organizing systems converged in the field of complexity theory during the 1980s. As is common in new interdisciplinary fields, those approaching the territory from different starting points have imported different interests, problems, methods, and terminologies. It is now a truism that there is not even basic agreement about the definition either of "complexity" itself or of related central terms such as *self-organization* and *emergence*. Nonetheless, consensus definitions are emerging, and these terms have demonstrated enormous heuristic value in suggesting analogies and models in a number of areas of study, including education.

Key Ideas of Complexity Theory

In complexity theory, a *system* is defined as a set of interacting parts that behave as a whole and can

be distinguished from an *environment* by identifiable boundaries. The system's function depends on the nature and arrangement of its parts. Because some parts interact, they are often referred to in complexity studies as *agents*. Systems may include one or many diverse types of agents: for example, army officers and enlisted men, classroom teachers and students, and business managers and workers. Agents of any type can follow similar or different rules, so there can be variation not merely among the agents but also among the rules or strategies. Systems also include nonagents, such as artifacts, which are used and acted on by agents.

The pattern of interactions among parts of the system determines the system's structure. A system is said to be complex to the extent that there are strong interactions among the parts, interactions that significantly influence the probabilities of many kinds of future events, including the subsequent actions and strategies of agents. Interactions in a system are more likely to be strong when there are many and diverse agents following diverse local rules or exhibiting diverse local strategies. The more complex the system, the stronger and more multiple the interactions, and the more difficult it is to interpret, predict, or control its behavior.

A *complex adaptive system* is one where the agents in the system seek to adapt to changing conditions in the system or the environment. Adaptation involves making selections (of agents, agent types, rules and strategies, or artifacts) in the system to improve the performance of the system's, or of an individual agent's, performance on some measure of success. An organization exists in a competitive environment, and the adaptive success of any selection (e.g., of personnel or strategies) depends not just on these selections but also on the success of selections of competitors in the environment. The environment is referred to as a *fitness landscape*, in which the fitness (capacity for organizational success and durability over time) of an organization rises and falls as a result of both the organization's adaptive selections and those of its competitors.

Complex human systems such as organizations are inherently adaptive. Humans draw on their rational, calculative side to state explicit goals and to devise through trial-and-error or experiment-effective strategies as means for achieving them. Complexity theory views system goals as tools to focus agent efforts: Goal achievement is not the same as fitness, as goals can be poorly chosen, and their achievement can accompany suboptimal system performance or even system failure in the system's changing environment.

Self-Organization and Emergence

Some systems, and especially those of interest to the field of complexity studies, take shape or form a structure "by themselves"—that is, through the interactions of agents following local rules rather than through top-down control. The flocking of birds, much studied and modeled by complexity theorists, is a paradigm of such systems, which are said to display *self-organization*.

Complexity theory seeks general principles about the growth and evolution of structure in systems to understand how changes in control parameters of the system—such as the number and diversity of interacting agents and strategies, the rate of flow of information in the system, and the strength of interactions—affect system components and their interactions. Changes in such control parameters affect the stability of organizations and their parts and can prompt phase transitions to different structures when the system operates at the edge of chaos or disorder. According to complexity theory, it is possible to control phase transitions in complex adaptive systems by manipulating control parameters even though the structure of the posttransition system cannot itself be predicted or controlled.

Complex systems are marked by *nonlinear causality*; that is, the causal relationships in the systems cannot be interpreted as linear or continuous functions. In systems tending to equilibrium, such as physiological systems in equilibrium, small positive feedback loops are balanced by negative feedback loops, so that linear mappings remain good approximations of cause-and-effect relations. Complex systems, however, operate far from equilibrium conditions; they are marked by unchecked positive feedback loops, so small changes in causal factors can have large and unpredictable effects.

When a system is destabilized by such a positive feedback process, it can fall into gross disorder, but significantly, it can also enter a phase transition to a new order at what is called the *edge of chaos*. (The term *chaos* in complexity theory retains its ordinary sense of disorder or disarray; it is not to be confused with the term as used in *chaos theory* to refer to an unusual type of order.) New structures, exhibiting new properties not previously witnessed in the system, may then emerge owing to processes of self-organization.

Three properties are characteristic of emergence. First, the new structure is entirely dependent on the interactions of the underlying parts—this property is often referred to as *supervenience*. Second, the emergent properties are not predictable on the basis of the properties of the parts—this is referred to as *holism* and is often expressed by saying that "the whole is greater than the sum of its parts." Third, once the new whole takes shape, it has significant effects on the behaviors of the parts—this is known as *downward causation*.

The central idea about organizational change in complexity theory is that organizational adaptations result from self-organized emergence rather than from central control. Functional stability and order are continuously maintained not through planning, top-down strategy, and tight control of operations but through successions of creative interactions at the edge of chaos that may be provoked or coordinated by leaders, but whose outcomes cannot be controlled. Leaders of organizations as complex adaptive systems cannot achieve top-down control because the causal links between the means at their disposal and the ends they seek simply cannot be mapped. To provoke change, organizational leaders can at best provoke phase transitions, so that a new, though unpredictable, adaptive order can emerge through self-organization.

The Classroom as a Complex System

A school classroom can be conceived as a complex system comprising teachers, learners, and artifacts such as pencils, worksheets, desks, and blackboards. In a typical classroom, information flow is determined in a top-down fashion in a curriculum established by reference to local, state, or national standards. Teachers convey preselected subject matters to learners and monitor learning with recitations and objective tests. In this way, a certain kind of order is maintained.

Complexity theorists view this kind of top-down structure as maintaining a suboptimal order by reducing complexity—suppressing differences among both teachers and learners as agent types possessing diverse strategies. The containment of these differences, while maintaining a rigid order, can also result in a breakdown of order as students act out in rebellion—hence the emphasis on classroom management strategies in teacher preparation.

Complexity theory suggests an alternative approach for fostering classroom order—releasing the complexity inherent in diversity by reducing top-down control, liberating learner action within given limits, and harnessing educational value from local interactions that ensue.

In *The School and Society*, John Dewey anticipated such an approach to classroom organization in all of its key elements, via a shift from fixed lessons to activities grounded in social occupations such as crafts, gardening, and cooking. The complexity in the classroom situation is released, because students reappear as distinct agents with varied aims and action strategies: "The moment children act they individualize themselves; they cease to be a mass, and become the intensely distinctive beings." He notes,

> As one enters a busy kitchen in which a group of children are actively engaged in the preparation of food, the psychological difference, the change from more or less—passive and inert recipiency and restraint to one of buoyant—outgoing energy, is so obvious as fairly to strike one in the face. (Dewey, 1976, p. 11)

He adds that

> to those whose image of the school is rigidly set the change is sure to give a shock. . . . There is a certain disorder in any busy workshop; there is not silence; persons are not engaged in maintaining certain fixed physical postures . . . they are doing a variety of things, and there is the confusion, the bustle, that results from activity. (Dewey, 1976, p. 12)

But as the learners interact in accord with local rules, in a situation defined by inherent aims and limits (cooking a meal with the ingredients on hand), a discipline "of its own kind and type" develops, preventing the bustle and confusion from flying off into chaos. Instead, "In an informal but all the more pervasive way, *the school life organizes itself* [italics added] on a social basis" (Dewey, 1976, p. 12).

Complexity theory points to further analyses of and research on classrooms, schools, school districts, and other educational organizations as complex adaptive systems. It predicts that organizations will be capable of more optimal function through the release of inherent complexity—greater diversity of agent types and strategies, freer flow of information—and the subsequent harvesting of heretofore obstructed educational values.

Leonard Waks

See also Dewey, John; Social Systems Theory: Talcott Parsons and Niklas Luhmann

Further Readings

Axelrod, R., & Cohen, M. (2000). *Harnessing complexity: Organizational implications of a scientific frontier.* New York, NY: Free Press.

Davis, B., & Sumara, D. (2006). *Complexity and education: Inquiries into learning, teaching, and research.* Mahwah, NJ: Lawrence Erlbaum.

Dewey, J. (1976). The school and society. In J. A. Boydston (Ed.), *The middle works of John Dewey* (Vol. 1, pp. 1–110). Carbondale: Southern Illinois University Press.

Fisher, L. (2009). *The perfect swarm: The science of complexity in everyday life.* New York, NY: Basic Books.

Holland, J. (1999). *Emergence: From chaos to order.* New York, NY: Basic Books.

Johnson, S. (2001). *Emergence: The connected lives of ants, brains, cities, and software.* New York, NY: Scribner.

Kauffman, S. (1996). *At home in the universe: The search for the laws of self-organization and complexity.* New York, NY: Oxford University Press.

Keller, E. F. (2009). Organisms, machines, and thunderstorms: A history of self-organization, Part II. *Historical Studies in the Natural Sciences, 39*(1), 1–31.

de Landa, M. (2002). *A thousand years of non-linear history.* New York, NY: Zone Books.

Waldrop, M. (1992). *Complexity: The emerging science at the edge of order and chaos.* New York, NY: Simon & Schuster.

CONCEPTUAL CHANGE

Research on conceptual change has emerged in recent years as an important area in developmental and educational psychology. Conceptual change research investigates knowledge acquisition processes both in child development and with older learners, particularly in situations where the new information to be learned is very different from learners' prior beliefs and requires the radical revision of prior knowledge and/or the creation of new concepts.

The problem of conceptual change became first apparent to philosophers and historians of science in their attempts to explain how scientific theories change. According to T. S. Kuhn (1970), normal science operates within sets of shared beliefs, assumptions, commitments, and practices that constitute "paradigms." Discoveries emerge over time that cannot be accommodated within the existing paradigm.

When these anomalies accumulate, science enters a period of crisis, which is eventually resolved by a revolutionary change in paradigm. Many scientific revolutions, such as those fueled by the Newtonian theory in physics, the Copernican theory in astronomy, and the Darwinian theory in biology, can be seen as the products of radical conceptual change. As Paul Thagard (1992) notes, in these cases, new theories are generated to explain known and new phenomena, and new concepts are formed.

Ideas about conceptual change from the history and philosophy of science were brought to developmental psychology through the work of Susan Carey (1985) and to science education through the work of George Posner, Kenneth Strike, Peter Hewson, and William Gertzog (1982). By the late 1970s, it had become apparent that students bring to their learning of science alternative frameworks, preconceptions, or misconceptions—some of which are rather robust and difficult to extinguish through teaching. In some cases, these alternative frameworks appeared to be similar to earlier theories in the history of science, for example, the impetus theory in mechanics (McCloskey, 1983). George Posner et al. (1982) drew an analogy between the concepts of normal science and scientific revolution offered by philosophers of science such as Kuhn (1970), and Jean Piaget's (1970) concepts of assimilation and accommodation, and derived from this analogy an instructional theory to promote "accommodation" in students' learning of science. According to Posner and his coworkers, students need to undergo a radical conceptual change when it comes to learning scientific concepts like *force*, *heat*, and *energy*.

Over the years, a significant body of research emerged that investigated the processes of conceptual change, the learning mechanisms involved in the generation of new concepts, and the instructional strategies that can promote it. The theoretical and methodological discussions that have taken place in this process have been some of the most interesting in the field of learning and instruction, raising important questions about the nature of knowledge, its organization, and its revision. Although the beginnings of conceptual change research can be traced to scientific discovery in physics and physics education, this research is by no means restricted to physics but makes a larger claim about learning that transcends many domains of knowledge and can apply, for example, to biology, psychology, history, political science, medicine, environmental learning, and mathematics.

Some researchers are not persuaded that there is a need to distinguish "conceptual change" processes from learning in general. However, while conceptual change is undeniably a form of learning, it is important to differentiate it from other types of learning because it requires fundamental changes in the content and organization of existing knowledge. It also requires the development of new learning mechanisms, mechanisms appropriate for deliberate knowledge restructuring and for the generation of new concepts. Most learning is implicit and additive involving mainly the enrichment of prior knowledge. Conceptual change cannot be achieved through the use of implicit, enrichment-types of learning mechanisms alone. In fact, the use of enrichment-types of learning mechanisms in situations that require conceptual change can often lead to the creation of misconceptions or "synthetic" conceptions. Synthetic conceptions are hybrid constructions that combine scientific information with intuitive beliefs and presuppositions based on everyday experience. In an example described by Stella Vosniadou and William Brewer (1992), young children often interpret scientific information regarding the spherical shape of the earth to mean that the earth is circular but flat like a pancake, or that the earth is spherical, but people live on flat ground inside it. These types of misconceptions are synthetic constructions suggesting that students are implicitly assimilating the new information regarding the spherical shape of the earth into their intuitive model of a flat earth. Similarly, erroneous strategies used by students in mathematics, such as the common mistake that $1/3 + 1/3 = 2/6$ instead of $2/3$, reveal the implicit interference of natural number operations in fraction addition (see Vamvakoussi & Vosniadou, 2010, for many more examples).

There are various theories that attempt to explain students' difficulties in situations where conceptual change is required. One approach, described by Andrea diSessa (1993), is known as "knowledge in pieces." According to this approach, the knowledge system of novices consists of an unstructured collection of many subconceptual elements, which become organized into a larger system of complex knowledge structures. This approach emphasizes the importance of knowledge integration in conceptual change processes.

Another approach, known as the "framework theory" approach, claims that children construct a naive theory of physics that is based on everyday observations in the context of lay culture, well before

they are exposed to systematic science instruction. When exposed to scientific explanations, students use the usual, constructivist, and enrichment-types of knowledge acquisition mechanisms to incorporate the new, incompatible, information to their background knowledge. Because of the incompatibility between existing knowledge structures and the new, to-be-acquired, information, however, such learning processes may lead either to internal inconsistency and, thus, to fragmentation, or to the formation of synthetic conceptions. According to this approach, conceptual change is difficult because it requires the creation of new ontological categories, new representations, and the development of a constructivist epistemology. Other researchers, such as Michelene T. H. Chi (2008), also argue that conceptual change is difficult because it requires shifts in the ontological category to which a concept is assigned. Finally, sociocultural approaches focus on the influence of context and consider the engagement in contextually appropriate discourse as a necessary component of a learning environment that fosters conceptual change (Hatano & Inagaki, 2003).

In addition to cognitive and situational factors, conceptual change also seems to be affected by various motivational factors, such as goals, self-efficacy, interest, and academic emotions. Although research is still scarce, some findings indicate that students who adopt a mastery goal orientation engage in more elaborative cognitive and metacognitive self-regulatory strategies than students who do not adopt a mastery goal orientation are thus more likely to achieve conceptual change. Confidence in one's ability to perform well in a particular task or domain may also influence performance through a more effective processing of the material to be learned. However, high self-efficacy may also have detrimental effects on conceptual change. High confidence in erroneous beliefs often generates resistance to revision and commitment to current conceptions.

Despite their theoretical differences, most researchers agree that conceptual change is a gradual and time-consuming affair that is difficult to achieve. Instruction for conceptual change requires substantial changes in curricula and extensive sociocultural support. Dialogical interaction, argumentation, collaboration, classroom discussion, and meaningful practices around carefully designed curricula based on students' learning progressions are the means of developing prolonged motivation for change, metaconceptual awareness, epistemological sophisticating, and deep comprehension

activity, all of which are important facilitators of conceptual change (Hatano & Inagaki, 2003; Vosniadou, Ioannides, Dimitrakopoulou, & Papademitriou, 2001).

Instruction for conceptual change is often associated with the use of cognitive conflict. Cognitive conflict can be produced by asking students to make predictions or give explanations of phenomena and then present them with contradictory experimental evidence or some other kind of anomalous data. As John Clement (2008) has noted, despite various criticisms of the use of cognitive conflict, research shows that a combination of dissonance with knowledge building strategies can be fruitful in promoting conceptual change. In recent years, cognitive conflict has been used in a particular type of text structure known as refutational text. A refutational text states readers' alternative conceptions about a topic explicitly and then directly refutes them, introducing the scientific concept as a viable alternative. The superiority of refutational text compared with traditional expository text has been documented in many studies.

Other instructional strategies that have been found to promote conceptual change involve the use of instructional analogies and model-based reasoning. Instructional analogies are explicit analogies in which an unfamiliar concept or explanation is introduced by appealing to its relational similarity to a familiar concept from a different domain. Several models of how to teach with analogies have been developed, all of which emphasize, among others, the need to (a) use well-planned analogies from a base domain highly familiar to students, (b) make the mapping between the base analog and the target concept clear and explicit, and (c) indicate where the analogy breaks down to avoid the creation of misconceptions.

Finally, some researchers focus on models and qualitative model construction and revision as an important mechanism for conceptual change. By constructing explanatory models, students translate the verbal and abstract theories and explanations of science into concrete representations that can be explored and examined. A number of innovative curricula have been developed that start with children's views and slowly build new representations and understanding through model-building activities. These approaches have been consistently more effective in bringing about conceptual change compared with standard physical activities in science.

Although a large body of empirical evidence pointing to the problem of conceptual change has been accumulated, the relevant findings and results have not yet found their way into everyday classroom practices. Most teachers are unfamiliar with the kind of students' pre-instructional conceptions that have to be taken into account when new concepts are introduced. Indeed, teachers' views of teaching and learning are so limited when seen from a conceptual change perspective that some researchers have argued that teachers themselves need to undergo a process of "pedagogical conceptual change" (Duit, Treagust, & Widodo, 2008).

In conclusion, instruction-based conceptual change research investigates learning processes that require the substantial revision of prior knowledge under conditions of systematic instruction. Conceptual change research has shown that many concepts are difficult to understand because they violate people's intuitive beliefs constructed on the basis of observational experience in the context of lay culture. Conceptual change is difficult to achieve and requires many years of concentrated instruction and the design of innovative, research-based curricula that take into consideration the students' point of view, meaningful practices, and extensive sociocultural support.

Stella Vosniadou

See also Kuhn, Thomas S.; Piaget, Jean

Further Readings

Carey, S. (1985). *Conceptual change in childhood.* Cambridge, MA: MIT Press.

Chi, M. T. H. (2008). Three types of conceptual change: Belief revision, mental model transformation, and categorical shift. In S. Vosniadou (Ed.), *The international handbook of research on conceptual change* (pp. 61–82). New York, NY: Routledge.

Clement, J. (2008). The role of explanatory models in teaching for conceptual change. In S. Vosniadou (Ed.), *The international handbook of research on conceptual change* (pp. 417–452). New York, NY: Routledge.

diSessa, A. (1993). Toward an epistemology of physics. *Cognition and Instruction, 10,* 105–225.

Duit, R., Treagust, D., & Widodo, A. (2008). Teaching science for conceptual change: Theory and practice. In S. Vosniadou (Ed.), *International handbook of research on conceptual change* (pp. 629–646). New York, NY: Routledge.

Hatano, G., & Inagaki, K. (2003). When is conceptual change intended? A cognitive-sociocultural view. In G. M. Sinatra & P. R. Pintrich (Eds.), *Intentional conceptual change* (pp. 407–427). Mahwah, NJ: Lawrence Erlbaum.

Kuhn, T. S. (1970). *Structure of scientific revolutions*. Chicago, IL: University of Chicago Press.

McCloskey, M. (1983). Intuitive physics. *Scientific American, 248*(4), 122–130.

Piaget, J. (1970). *Structuralism*. New York, NY: Harper & Row.

Posner, G. J., Strike, K. A., Hewson, P. W., & Gertzog, W. A. (1982). Accommodation of a scientific conception: Toward a theory of conceptual change. *Science Education, 66*, 211–227.

Thagard, P. (1992). *Conceptual revolutions*. Princeton, NJ: Princeton University Press.

Vamvakoussi, X., & Vosniadou, S. (2010). How many decimals are there between two fractions? Aspects of secondary school students' reasoning about rational numbers and their notation. *Cognition and Instruction, 28*(2), 181–209.

Vosniadou, S., & Brewer, W. F. (1992). Mental models of the Earth: A study of conceptual change in childhood. *Cognitive Psychology, 24,* 535–585.

Vosniadou, S., Ioannides, C., Dimitrakopoulou, A., & Papademitriou, E. (2001). Designing learning environments to promote conceptual change in science. *Learning and Instruction, 11*(4–5), 381–419.

CONFUCIUS

Confucius (551–479 BCE, China) was the first philosopher to offer systematic views on the values, purposes, and methods of education. While working as a consultant on classics, morality, rituals, and statecraft and holding offices to implement his ideals of good government, Confucius started his own school. It was one of the first in China. Confucian views on education have strongly influenced the educational systems and policies of China, Taiwan, Japan, and Korea for more than 2,000 years. The essence of his thought is that education is a learner-initiated quest for human excellence, which is of supreme value for individuals and society. The major source of his philosophy is the *Analects*, a collection of his teachings and conversations with his disciples. It was compiled after his death by his students. This entry discusses the purpose of Confucian education and its emphasis on virtue, his teaching method, and his conception of learning.

The Purpose of Confucian Education

For Confucius, living virtuously is the highest goal of life. Education is necessary for the realization of this supreme goal. Confucius believes that there is the Way (*tao*) for human beings, and following it is necessary to live the best life. The Way is realized when people possess and practice the virtue of humaneness (*ren*). For Confucius, humaneness is the most comprehensive virtue and includes filial piety, elderly respect, and sincere observance of rituals, righteousness, truthfulness, sincerity, and wisdom. The cultivation of these virtues necessarily requires education. This is because all people are the same at birth and are by nature neither good nor bad. Some become virtuous, however, due to proper training, and others become vicious, due to improper training. Training is practice in a form of behavior: either virtuous or vicious. In a nutshell, education, for Confucius, means education in the virtues, and practice is essential.

Education is not just to enable an individual to lead a flourishing life, however, but to enable the creation of a flourishing state. Rulers must follow the Way and cultivate the virtues. This is very important for Confucius, since he believes that rulers and officials can realize the Way in government and can create a good state, only through the practice of the virtues. The mere establishment of laws and policies is not enough. If rulers and officials live virtuous lives, citizens will imitate them and cultivate the virtues in their own lives. Confucius says, if the rulers practice rituals, reverence, righteousness, and truthfulness, the people will practice the same. In that case, people from other states will come to live under such rulers. The state will flourish with virtuous and able citizens. The flourishing of a state, then, depends on the education—the learning—of citizens, rulers, and officials of the government.

Virtue Education and Practical Knowledge

Confucian education is education in the virtues. In Confucius's view, education in technical and practical knowledge has low or minimal value. This is true even of the technical and practical knowledge of government officials. He claims that a person aspiring to be excellent shouldn't aim at fulfilling a specific role in society that requires only role-related knowledge. However, Confucius does not look down on common people or denigrate the importance of practical and technical knowledge in society. His strong emphasis on virtue education means

only that the worthiness of a person as a human being is determined solely by possession and practice of the virtues and that the cultivation of the virtues is prior to the practice of statecraft as such, even for government officials. Confucius's position is that after one has cultivated and practiced the virtues, one can and should pursue practical and technical knowledge.

Confucius's Teaching Method

Education, as the key to the flourishing individual and state, should be centered on studying and learning rather than on teaching and instructing. What is necessary for the cultivation of the virtues is practice of the virtues initiated by the learner. Without learning, Confucius claims, the quest for the cultivation of the virtues achieves only folly and vice. For example, the aspiration to be courageous results in rebelliousness without learning to be truly courageous. Also, the virtues cannot be cultivated externally, without the aspiration or desire for them. Confucian education is thus a learner-initiated effort to learn. For this reason, Confucius says very little about the efficacy of various teaching techniques, even though he himself was a dedicated teacher with his own unique methods. The role and function of teachers are limited, at least compared with what has become customary in the Western world today. A person is fit to be a teacher, Confucius says, if he is a transmitter of time-honored traditions and knowledge and a practitioner of acquired new wisdom through the study of the classics and the practice of virtue. Confucius takes no one else to be qualified as a teacher.

It is a mistake to take this to mean that Confucius is an educational reactionary and denies the efficacy of good teaching techniques. His methods show otherwise. They are designed to promote thought, in an effort to strengthen learning, reinforce the virtues, and solidify good social practice. He prefers the Socratic elenchus to long lectures and frequently asks his students questions, as well as answers questions posed to him by his students. The conversations that ensue are filled with concrete illustrations and analogies drawn from the classics, rather than with abstract and theoretical concepts. And Confucius's comments and questions are always geared to the level of intellectual and moral development of his interlocutors. He reasons together with his students to investigate an issue. Challenges from his students were also welcomed by him. He even describes one

of his disciples as stupid because he didn't contradict Confucius. Critical thinking is more than encouraged—it is required—in Confucian learning. Confucius's teaching techniques are thus designed to acquaint students with received wisdom as well as to invite new insights. True Confucian education is therefore quite different from what has become known and practiced as "Confucian education." Knowledge as rote memorization of the classics, with uncritical acceptance of what the teacher hands down as wisdom, is a pleasant and simple picture of Confucian education, but it is nothing more than a gross caricature.

Confucius on Learning

Learning has the cultivation of the virtues as its goal, and Confucius believes that learning must begin with the aspiration of the learner. Learning then progresses with critical thinking, respectfully directed on accumulation of knowledge and on oneself. The study of culture and the classics is essential for learning. But learning is never divorced from life. Learning is fully realized in the practice of virtue in life. For Confucius, learning comprises aspiration for the cultivation of the virtues, the active accumulation of materials (especially the classics) for study, critical thinking on the accumulated materials and oneself, and the practice of what one has learned. All are inextricably linked.

This view of learning is exemplified in Confucius's own life. His lifelong aspiration to learn, he said, began at the age of 15, when he decided that the goal of his life was learning. Such a decision is necessary but not sufficient for learning, he realized. Immersion in the classics and critical reflection are also necessary. Much wisdom can be found in the classics, he discovered, but not as mere formulas or dry facts. Wisdom requires active reflection on the accumulated wisdom found there and elsewhere, and the accumulation of wisdom through critical thinking on accumulated wisdom is learning. However, wisdom attained through learning is not merely from studying many things and remembering them. He claims that learning without thinking is fruitless and that thinking without learning is perplexing. Learning in the sense of studying and memorizing the wisdom of others, without thinking, leads to misunderstanding, while thinking without any substantial acquisition of the wisdom of others leads to confusion. The sort of thinking that is required for true

learning is critical thinking, and it must take as its object knowledge attained from the study of the classics and the wisdom of others. In fact, thinking on such valuable accumulated materials to regain old wisdom for oneself and to attain new insights for new problems and questions is what critical thinking is.

In addition to critical thinking on accumulated materials, critical self-reflection is also an essential component of Confucian learning. Reflection on one's capacities, strengths, weaknesses, and limitations duly humbles a person and makes him open not only to the possibility of his own mistaken views but also to the teaching of others. The expected results of such critical self-reflection can again be seen in Confucius's own life: flexibility of thought, open-mindedness to ideas, humility in all matters, skepticism about the absolute certainty of one's knowledge, and candid admission of one's own limitations and weaknesses. Critical self-reflection is one of the pillars of Confucian thinking and helps strengthen critical thinking on accumulated materials.

Learning's ultimate aim is the practice of the virtues, not merely their possession. Virtues such as filial piety, respect for the elderly, sincere observance of rituals, truthfulness, righteousness, and wisdom are cultivated and completed through repeated and habitual practice. For Confucius, education is a life-transforming effort in the practice of the virtues by the learners themselves.

Hye-Kyung Kim

See also Aristotle; Critical Thinking; Learning, Theories of; Self-Regulated Learning; Socrates and Socratic Dialogue; Virtue Ethics

Further Readings

Ames, R., & Hall, D. (1987). *Thinking through Confucius.* Albany: State University of New York Press.

Huang, C. (1997). *The analects of Confucius.* New York, NY: Oxford University Press.

Kim, H.-K. (2003). Critical thinking, learning and Confucius: A positive assessment. *Journal of Philosophy Education, 37*(1), 71–87.

Riegel, J. (2011). Confucius. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy.* Retrieved from http://plato.stanford.edu/archives/spr2012/entries/confucius

Soles, D. (1995). Confucius and the role of reason. *Journal of Chinese Philosophy, 22*(3), 249–261.

Connoisseurship and Educational Criticism

Educational criticism is an aesthetically grounded approach to qualitative research. In this entry, *connoisseurship* refers to the act of knowing; criticism refers to representing that knowledge in public venues such as academic books and journals. Founded by Elliot W. Eisner at Stanford University, the educational connoisseurship and criticism model seeks to illuminate the meanings, qualities, and patterns that constitute school experience. While most educational research is informed by the social and behavioral sciences, educational criticism takes its lead from the work of critics in fields such as music, literature, drama, film, and the visual arts. For this reason, educational criticism offers an alternative frame of reference for considering epistemological issues in research. Such issues include the roles of objectivity and subjectivity as well as questions of research validity and generalizability.

This entry is divided into two parts. First, it examines the structure of educational criticism as made up of four overlapping dimensions: description, interpretation, evaluation, and thematic. Second, the entry addresses questions of warrant by focusing on three criteria for assessing criticism. These criteria include consensual validation, structural corroboration, and referential adequacy.

The Structure of Educational Criticism

The first dimension of educational criticism is *description*. This dimension focuses on providing accounts of what critics have seen or heard based on their own firsthand observations. The terms *see* and *hear* are used in this context as achievement verbs. They imply informed discernment and sensibilities. To use an analogy, wine critics do more than enjoy wine. If they are to perform their functions well, they must examine the color and clarity of wine with a trained eye. As connoisseurs, their palates must be able to discern a wine's complex balance and blend of flavors. Critics must attune their sense of smell to the dominant and minor aromas of a wine's bouquet. In addition to wine, one need only consider dance, music, poetry, painting, or sculpture to recognize that such products of human experience are resolutely grounded in sensory perceptions. Likewise, understanding the subtle qualities of a classroom lesson, the nuanced messages of a textbook, or the

dramas of preschool children at play depend on knowing what to look for.

The forms of discernment described above are often associated with fieldwork and data collection. Other sensibilities are involved with the task of providing a vivid representation of what the critic has learned. Description in educational criticism seeks to put others at the scene through expressive language. Such language may employ narrative structures, metaphors, connotative meanings, symbols, and onomatopoeia. Expressive description calls for what some call "an ear for language." In representing the feel of a classroom or the orchestration of a lesson, critics know that matters of tone, tempo, and style make a difference.

The second dimension of educational criticism is *interpretation*. The aim of interpretation is to explicate observations and further an understanding of how and why educational practices take place the way they do. In short, critics not only *sense* the qualities of educational experience, they also seek to *make sense* of them. The contents of observations are interpreted as part of a category, class, or pattern of meaning. Thus, interpretation involves the use of theories and concepts.

All researchers interpret their data using theories that they either bring to a study or develop as the study proceeds. Educational critics, however, do not use theory to predict an experience or its outcome. Rather, theories and concepts are used as maps or guides that help bring into focus certain patterns of meaning. Educational criticism is interpretive in another sense as well. Critics focus their inquiry on how research participants interpret their own experiences. For example, critics might focus on how teachers, students, or school administrators understand a new algebra program, or they might examine what it means to teach under different types of school leadership.

A third dimension of educational criticism is *evaluation*. Evaluation overlaps with both description and interpretation in that these dimensions are shaped by what critics judge to be worth attending to in the first place. On this point, misunderstandings may stem from the lay use of the term *criticism* to mean faultfinding. Educational critics are not so predisposed. If anything, the opposite is true. In the arts, criticism has a tradition of selecting exemplary work to critique. The critic's responsibility is to help others understand what constitutes goodness in domains, like education, that are themselves highly normative. Critics may point to problems,

educational or otherwise; but even in these cases, negative evaluations are tempered with an effort to portray the complexities of school practice.

Critics are also quick to recognize that no single value or set of values is agreed on as the final arbitrator of good (or bad) education. Critics may ask how well a lesson promotes critical thinking, is relevant to the students' lives outside of school, fosters cultural literacy, increases equity, or prepare students for adult life. Critics also seek to contextualize their judgments relative to the particular intentions and situations at hand. Here, an analogy with sports may also be helpful. Fans will judge a game based on how well it is played and not simply on its final score.

The fourth dimension of educational criticism is *thematics*. Themes are similar to generalizations in research but significantly differ in their use. Sometimes referred to as transferability, themes represent the recurrent messages, concepts, principles, or patterns that are extracted from the study of particulars. The critic's aim is to recognize and name patterns that will help others better understand experiences they have previously encountered and puzzled over. In this respect, themes contribute to the anticipatory schema that allow interpreting experiences at a more sophisticated level than would otherwise be possible. Even single cases, if they are meaningful, reveal not only themselves but also the qualities and attributes they hold in common with other cases of the same type. Themes are based on this premise.

Issues of Warrant

How does one judge the trustworthiness or believability of an educational criticism? The answer to this question is partly a matter of how criticism is viewed. In particular, critics see research as an amalgam of qualities that are postulated to exist combined with the critic's own sensibilities, beliefs, and values. Because the critic's antecedent knowledge always colors and shapes his or her work, expecting ontological or procedural objectivity is inappropriate. Instead, readers of criticism look for well-supported arguments, reasonable claims, and plausible accounts. Three criteria are useful in making this determination. The first is *consensual validation*. When two or more critics observe in the same school, readers should be able to recognize that particular school or similar schools based on the descriptions provided. This is consensual validation. Educational critics

sometimes share their work with others who are not research participants but who have extensive knowledge in the areas being addressed. If these informed others concur with the criticisms at hand, this is also a form of consensual validation. Yet we look for agreement only in those areas where one would reasonably expect to find it. As noted above, different critics bring different sensibilities informed by different frames of reference to what they observe. Just as a criticism of Shakespeare's *Hamlet* reflects the critic's own reading of that play, an educational criticism reflects the critic's own readings of a classroom, lesson, or textbook.

A second way to assess the trustworthiness of educational criticism is *structural corroboration*. Structural corroboration concerns the weight of the evidence and its rightness of fit. Is the criticism well informed through multiple data sources or by other means? Does the critic provide enough context or "thick" description for readers to reach their own warranted conclusions?

Evidence in all forms of research can be used selectively. For this reason, another aspect of structural corroboration is whether the critic has sought out disconfirming or contradictory evidence. Have critics presented a fair and balanced account of their observations? And have their views changed as a result of their research?

The question of changed views or fresh perspectives is related to a third criterion, that of *referential adequacy*. Referential adequacy is the degree to which the critic's accounts are informative or telling. Two major functions of criticism are to reeducate our perceptions and to enlarge our understandings. Critics seek to accomplish these aims from both a retrospective and prospective point of view. Retrospectively, referentially adequate criticism asks its readers to revisit prior experiences to consider them in a new light. In locating and naming the subject matter of experience, critics often bring into focus aspects of teaching and learning that were otherwise known only tacitly or at a taken-for-granted level. Referential adequacy in this sense allows readers to articulate knowledge of which they had not been fully aware. Prospectively, we can ask about the degree to which criticism serves as a set of cues or guides to understanding future experience. Because no two experiences are identical, all experiences are "new" to the person who undergoes them. Still, many experiences share similarities, and thus, our past shapes how we understand the present and future situations in which we find

ourselves. Criticism seeks to further its own foundations of connoisseurship by providing opportunities for learning. On this basis, forms of referential adequacy represent the educational functions and instrumental utilities of criticism.

David J. Flinders

See also Case Studies; Educational Research, Critiques of; Narrative Research; Qualitative Versus Quantitative Methods and Beyond

Further Readings

Eisner, E. W. (1998). *The enlightened eye: Qualitative inquiry and the enhancement of educational practice.* Upper Saddle River, NJ: Charles E. Merrill.

Flinders, D. J., & Eisner, E. W. (2000). Educational criticism as a form of qualitative inquiry. In D. L. Stufflebeam, G. F. Madaus, & T. Kellaghan (Eds.), *Evaluation models: Viewpoints on educational and human services evaluation* (pp. 197–207). Boston, MA: Kluwer Academic.

Moroye, C., & Uhrmacher, P. B. (2009). Aesthetic themes of education. *Curriculum and Teaching Dialogue, 11,* 85–101.

Uhrmacher, P. B., & Matthews, J. (Eds.). (2005). *Intricate palette.* Upper Saddle River, NJ: Pearson Education.

CONSTRUCTIVISM

See Radical Constructivism: Ernst von Glasersfeld; Social Constructionism

CONTINENTAL/ANALYTIC DIVIDE IN PHILOSOPHY OF EDUCATION

In the view of many scholars, the Western philosophical tradition, with its long history going back to the days of ancient Greece, ceased to be "a" tradition—that is, a single tradition—shortly after the lifetime of Immanuel Kant (1724–1804). According to this account, about then two different pathways were pursued, each group of philosophers adopting quite different writing and argumentative styles, and each seemingly focusing on different philosophical problems. Furthermore, these two traditions were geographically isolated (at least in the early days), one flourishing on the European continent and the other in the English-speaking world. The two

traditions came to be known as "Continental philosophy" and "analytic philosophy" (or "Anglo-American analytic philosophy"), respectively; and the gulf between them, marked by indifference if not disdain, together with mutual incomprehension, widened with the passage of time. This Continental/analytic divide came to be reflected in the new field of philosophy of education as it evolved during the 20th century. A stereotype of the two traditions caught on; one scholar described it in these terms:

> Precision, conceptual clarity and systematic rigour are the property of analytical philosophy, whilst the continentals indulge in speculative metaphysics or cultural hermeneutics, or, alternatively, depending on one's sympathies, in wool-gathering and bathos. (Stanley Rosen, quoted in Critchley, 2001, p. 34)

The history of the North American Philosophy of Education Society from the late 1950s until the early 1970s bears witness to the existence of this chasm. In the first part of this period, the Society was dominated by individuals who worked within the broad Continental tradition (existentialism was particularly prominent), and analytic philosophers of education were rarely given slots on the programs of the annual conferences—instead, they met clandestinely, "after hours," in the hotel room of some individual who had volunteered to host the reading of a scholarly paper. By the late 1960s and early 1970s, the situation was reversing as seminal work in the analytical mode by R. S. Peters, Paul Hirst, and others in the United Kingdom, and by Israel Scheffler and others in the United States became better understood and more influential. Eventually, analytic philosophy dominated the North American Philosophy of Education Society conference programs; later still, a compromise was reached whereby work from both traditions appeared, a practice that has survived down to the present day (Kaminsky, 1993; Phillips, 2000).

It seems undeniable, then, that there are at least two coexisting modes or traditions; a few moments spent in the relevant section of an academic library will bear this out if further evidence is needed. The problem arises in offering a characterization of the differences between these; the traditional account (a synopsis of which was given above) and the popular stereotype simply do not hold water. In the first place, seeing the divide in geographical terms is quite misleading, for there always have been individuals in the English-speaking world who have pursued philosophy in the so-called Continental mode, and there have been individuals on the Continent who have written and argued in fine analytical style on topics with an analytic flavor. Furthermore, as intercontinental travel and overseas study both became common (together with migration forced on many scholars due to the ravages of war), geographical characterization of the traditions became asinine. Currently, much so-called Continental philosophy (and philosophy of education) is pursued in North America, the United Kingdom, and Australasia, as well as in Europe; and philosophy in the analytic mode can be found in Finland, Sweden, Germany, Austria, and elsewhere on the Continent, as well as in the English-speaking world.

An additional complexity is that some of the roots of English-language analytical philosophy are to be found on the Continent. The German philosopher Gottlob Frege (1848–1925) is often credited with being the father of modern analytic philosophy, and substantial contributions were made by Rudolf Carnap and Ludwig Wittgenstein among others (these two Austrians relocated to the United States and the United Kingdom, respectively); modern philosophy of science owes much—substantively, methodologically, and stylistically—to the logical positivist members of the Vienna Circle and also to Karl Popper (another Austrian)—all of whom moved from Europe to escape Nazi persecution and had an enormous impact on English-language philosophy. Taking note of this history, one authority has suggested that analytic philosophy would be more appropriately identified as Anglo-Austrian than Anglo-American.

The case of John Dewey adds another layer of complexity to the story. It does not seem quite right to characterize him as a Continental philosopher, nor was he an analytic one. He was a towering figure in American (pragmatic) philosophy and also philosophy of education, but he was trained in Hegelian philosophy in the United States (at Johns Hopkins) by professors who had studied in Germany; and his early publications were on Kant and Hegel. However, he also was markedly influenced by William James (a strong opponent of Hegelianism) and by the logician and philosopher of science, Charles S. Peirce. Dewey's influence on philosophers on the Continent has not been trivial, and currently, it is undergoing a new spurt of growth; even some philosophers of education in the United Kingdom read him.

The upshot, then, is that it makes no sense to regard the expression "Continental philosophy" as referring to a place or even to a unified tradition; a distinguished British philosopher and philosopher of education has stated that "the continent, for our purposes, is not a place, but a tendency" (Cooper, 1994, p. 2). The most common tendency pointed out in the literature is the frequent use of high-sounding, vague, unduly complex prose coupled with loosely formulated argumentation—in short, the accusation is that Continental philosophy tends to lack clarity and rigor, in contrast to analytic philosophy, which is clear, straightforward, and logically precise. The analytic philosopher Henry D. Aiken exhibited this tendency when he proclaimed that "reading Heidegger is like trying to swim through wet sand" (quoted in Lucas, 1969, p. 32).

An anecdote involving Karl Popper also is illustrative here. Noted for the straightforwardness and simple elegance of his prose, Popper regarded clarity as perhaps the major virtue of a piece of philosophical (or scientific) writing, for it was associated with openness to criticism and the possibility of error detection (which are important in enabling our ideas to progress toward the truth). On one occasion, when several major Continental philosophers had drawn his ire, Popper wrote this scathing assessment of the intellectual values they passed onto their students—an admiration of "brilliance and impressive opaqueness":

> Many years ago I used to warn my students against the widespread idea that one goes to university in order to learn how to talk, and to write, impressively and incomprehensively. At the time many students came to university with this ridiculous aim in mind, especially in Germany. . . . Thus arose the cult of un-understandability, the cult of impressive and high-sounding language. (Popper, 1976, p. 194)

To put what is perhaps the same point more charitably, it has been suggested that Continental philosophers are more likely than analytic philosophers to write in a literary mode, making use of a variety of literary tropes to make their case. In the 1990s, Jacques Derrida was even accused of producing prose that was full of puns and jokes (and "logical phalluses") and gimmicks akin to those used by the Dadaists—strong condemnation indeed!

However, it is important to recognize that the balance is not completely tipped in favor of analytical philosophy, for it also has had critics. No less a source than *Time* magazine in 1969 ran a story (that could have been written yesterday) on the state of philosophy, in which it was remarked that it had "become a private game for professionals," lacking the social significance it once had possessed. In the past, philosophers had been put to death because of the dangerous significance of their work, but this could no longer happen—not because these days there was more sensitivity about executions, but because "there is no need to kill that which is already dead." The article continued by pointing out that laymen glancing at a recent number of the blue-ribbon *Journal of Philosophy* "would find a brace of learned analysts" discussing which of two logical formulae best expressed the statement "there are brown things and there are cows" (*Time*, reprinted in Lucas, 1969, pp. 29–34). The point was obvious: Analytic philosophy had become sterile (and, strangely enough, this judgment was written about the time there was a groundswell of interest in analytic philosophy of education in the United Kingdom and the United States—for this latter field has always lagged a few years behind its parent discipline).

The difference in focus and in style between the two modes or traditions, touched on earlier, needs to be revisited. Why does work in the Continental tradition use language in such a dense, literary, and (arguably) loose way; and why does analytic philosophy verge on being pedantic in its efforts to be clear and precise? In Simon Critchley's analysis, we need to go back to Kant's philosophy to find the answer. The analytic tradition had its roots in the work of philosophers who focused on Kant's first critique (*Critique of Pure Reason*, 1781). The focus here was to find a grounding for empirical knowledge that avoids the perils of skepticism—essentially, this was an epistemological interest, one that required great linguistic precision and conceptual clarity for its fulfillment in the pursuit of truth. The other tradition (or "culture," as Critchley calls it) stems from Kant's third critique (the *Critique of the Power of Judgment*, 1790); if one takes this route, Critchley (2001) writes, "the burning issue of Kant's philosophy becomes the plausibility of the relation of pure and practical reason, nature and freedom, or the unity of theory and practice" (p. 19). This pursuit—which in essence is the pursuit of practical wisdom and social critique—requires a different set of philosophical skills; it also has been claimed that this focus leads to a greater appreciation of the intellectual history of the relevant ideas.

However, there is an important caveat to enter here; philosophical traditions are not unified, cohesive things, and often internal differences generate more heat than do the external differences with members of alternative traditions. Writing of the Continental tradition, William Schroeder (1999) puts the point this way: "I think that a unilinear model of historical progress in Continental philosophy is misleading and fruitless. But I also believe that the diverse programs in the tradition more often supplement than conflict" (p. 615).

An illustrative example is needed to put flesh onto the bare bones of the preceding discussion. Here, then, are two passages in which "representatives" of each tradition are discussing, in their own typical way, about what is close to being the same centrally important concept. The example is misleading, however, if it suggests that Continentals and analysts were always interested in the same issues; as hinted above, traditions of scholarship tend to have a life of their own, wherein earlier work in the tradition often becomes the focus of vigorous discussion in later work, or is built on by it—the trajectory of a tradition, in other words, is to some extent contingent. (Thus, for instance, the decades-long interest of analytic philosophers of education in the so-called logic and language of education does not run parallel to a similar detailed focus of attention within the Continental tradition.)

For illustrative purposes, then, a good representative of the Continental tradition—one who writes more lucidly than most—is Hans-Georg Gadamer. In 1960, he authored an account (revised in the 1980s) of the concept *Bildung*, which is close to but broader than the English-language concept of education; here is an extended extract:

> In accordance with the frequent transition from becoming to being, Bildung (like the contemporary use of the German word "Formation") describes more the result of the process of becoming than the process itself. The transition is especially clear here because the result of Bildung is not achieved in the manner of a technical construction, but grows out of an inner process of formation and cultivation, and therefore constantly remains in a state of continual Bildung. It is not accidental that in this respect the word Bildung resembles the Greek physis. Like Nature, Bildung has no goals outside itself. (The word and thing Bildungsziel—the goal of cultivation—is to be regarded with the suspicion appropriate to such a secondary kind of Bildung.

Bildung as such cannot be a goal, it cannot as such be sought, except in the reflective thematic of the educator.) In having no goals outside itself, the concept of Bildung transcends that of the mere cultivation of given talents, from which concept it is derived. The cultivation of a talent is the development of something that is given, so that practicing and cultivating it is a mere means to an end. Thus the educational content of a grammar book is simply a means and not itself an end. Assimilating it simply improves one's linguistic ability. In Bildung, by contrast, that by which and through which one is formed becomes completely one's own. To some extent everything that is received is absorbed, but in Bildung what is absorbed is not like a means that has lost its function. Rather, in acquired Bildung nothing disappears, but everything is preserved. (Gadamer, 1993, p. 11)

Contrast this with part of the account of the English-language concept of education, written at approximately the same time by perhaps the central figure in so-called ordinary language analytic philosophy of education, the British academic R. S. Peters; there were several parts to his analysis, which was based on his understanding of ordinary English usage:

> (a) The educated man is not one who merely possesses specialized skills. He may possess such specific know-how but he certainly also possesses a considerable body of knowledge together with understanding. He has a developed capacity to reason, to justify his beliefs and conduct. He knows the reason why of things as well as that certain things are the case. This is not a matter of just being knowledgeable; for the understanding of an educated person transforms how he sees things. It makes a difference to the level of life which he enjoys; for he has a backing for his beliefs and conduct and organizes his experience in terms of systematic conceptual schemes. (b) There is the suggestion, too, that his understanding is not narrowly specialized. He not only has breadth of understanding but is also capable of connecting up these different ways of interpreting his experience so that he achieves some kind of cognitive perspective. . . . (c) In contrast, too, to the instrumentality so often associated with specialized knowledge, the educated person is one who is capable, to a certain extent, of doing and knowing things for their own sake. He can delight in what he is doing without always asking the

question "And where is this going to get me?" This applies as much to cooking as it does to chemistry. He can enjoy the company of a friend as well as a concert. And his work is not just a chore to be carried out for cash. He has a sense of standards. (1973, p. 240)

This extended example, though far from perfect, illustrates both the virtues and the drawbacks of the Continental and analytic traditions, cultures, or modes. And it also points to a charitable conclusion, namely, that both approaches probably are useful and that they are to some degree complementary. Both too have their dangers—sterility and scientism on the one hand and (as Critchley concedes) obscurantism on the other.

Deborah Kerdeman and D. C. Phillips

See also Dewey, John; Foucault, Michel; Heidegger, Martin; Hermeneutics; Kant, Immanuel; Lyotard, Jean-François; Peters, R. S.; Phenomenology; Positivism; Russell, Bertrand; Scheffler, Israel; Wittgenstein, Ludwig

Further Readings

Cooper, D. (1994). Analytical and continental philosophy. *Proceedings of the Aristotelian Society, 94,* 1–18.

Critchley, S. (2001). *Continental philosophy: A very short introduction.* Oxford, England: Oxford University Press.

Gadamer, H.-G. (1993). *Truth and method* (2nd rev. ed.; J. Weinsheimer & D. G. Marshall, Trans.). New York, NY: Continuum.

Glock, H.-J. (2008). *What is analytic philosophy?* Cambridge, England: Cambridge University Press.

Kaminsky, J. S. (1993). *A new history of philosophy of education.* London, England: Greenwood Press.

Levy, N. (2003). Analytic and continental philosophy: Explaining the differences. *Metaphilosophy, 34,* 284–304.

Lucas, C. (1969). *What is philosophy of education?* London, England: Macmillan.

Peters, R. S. (1973). The justification of education. In R. S. Peters (Ed.), *The philosophy of education* (pp. 239–267). Oxford, England: Oxford University Press.

Phillips, D. C. (2000). Interpreting the seventies. *Educational Theory, 50*(3), 321–338.

Popper, K. (1976). Reason or revolution? In T. W. Adorno, H. Albert, R. Dahrendorf, J. Habermas, H. Pilot, & K. R. Popper (Eds.), *The positivist dispute in German sociology* (pp. 288–300). New York, NY: Harper Torchbooks.

Schroeder, W. (1999). Afterword. In S. Critchley & W. R. Schroeder (Eds.), *The Blackwell companion to continental philosophy* (pp. 613–638). Malden, MA: Blackwell.

COSMOPOLITANISM

Cosmopolitanism is not an easy term to define, given its long conceptual history and shifting contexts. The first known usage of the term is by the Cynic Diogenes in the 4th century BCE. An itinerant from Sinope who lived on the streets of foreign city-states, Diogenes, when asked where he was from, replied, "I am a citizen of the world [*kosmopolites*]." Etymologically, the term is derived from the Greek *kosmos* (universal order) and *polis* (city-state), which together give rise to the notion of a community that is of the world. This emphasis on worldliness and a sense of belonging to a shared community, as opposed to the narrowly construed sense of family, tribe, and nation, has influenced thinkers as diverse as the Roman Stoics, Augustine, and Immanuel Kant.

For Stoics such as Cicero and Seneca, cosmopolitanism was in conversation with the turbulence of imperialism and its multicultural legacy. Here, the shared political community was based on granting citizenship to all human subjects on the basis of their rationality. There is thus a unifying gesture in cosmopolitanism that seeks to bring together cultural differences under a single political umbrella. By the time of early Christianity, Augustine's cosmopolitanism focused instead on an understanding of the unified religious community (the "City of God"), in which diverse individuals were brought together through their universal love of God. In the Renaissance, the great humanist Erasmus professed the idea of tolerance across cultural differences, making a claim for a sense of belonging to a world beyond one's own national or religious interests. Cosmopolitanism received renewed attention in the 18th century in the philosophy of Immanuel Kant, whose work continues to inform much current scholarship on cosmopolitanism across various disciplines, including education. It is important to remember that cosmopolitanism is not merely a Western idea but has also appeared in the ancient scriptures of the Upanishads and Confucius's *Analects* (Hansen, 2011).

Broad definitions of the term abound, and one might also group these various definitions into

political cosmopolitanism, economic cosmopolitanism, cultural cosmopolitanism, and moral cosmopolitanism, each one offering a specialized focus (Kleingeld & Brown, 2006). While all definitions of cosmopolitanism have in common the ideas that we are part of a shared world community and that there is a need for respect of other cultures and traditions, there are very different theories about what cosmopolitanism ought to mean today for political, social, cultural, and educational projects. The wide range of theorizing devoted to cosmopolitanism can be captured by two general orientations: classic cosmopolitanism and new cosmopolitanism.

Classic Cosmopolitanism

Classic cosmopolitanism has emanated primarily from the Stoics in classical times and from Immanuel Kant in modern times. Largely occupying the disciplines of philosophy, political theory, and international relations, most contemporary revivals of cosmopolitanism, however, are indebted to the Kantian tradition as opposed to the Stoic one, with the work of Martha Nussbaum being a notable exception in its combination of the two. Indeed, many have attempted to redefine Kant's early articulations of a world federation, the idea of belonging to a common world, and the fostering of values that cultivate a sense of our shared humanity. Such redefinitions are put in the service of rethinking political institutions and alliances and the moral ground on which such political reforms can take place. This is often accomplished through appeals both to cultural pluralism and to universal principles. In this sense, these renderings deal primarily with political, economic, and moral cosmopolitanism.

For example, two of the most influential theorists have combined elements of present-day liberal democracy with Kantian aspects of cosmopolitanism. David Held (2005) advocates for a "cosmopolitan democracy" based on the realignment of international institutions that would promote democracy globally. Underlying Held's pluralism are familiar Kantian commitments to autonomy and impartial reasoning, which are identified as "metaprinciples" of cosmopolitanism. Nussbaum (1997) argues for a moral understanding of cosmopolitanism, based on our empathic imagination and our capacity for universal reason. Thus, what we share universally forms the moral bedrock for creating a world community that crosses cultural borders. These and other revivals of classic cosmopolitanism

base their views on appeals to universal humanity, reason, rights, and world citizenship, taking these (in varying degrees) as fundamental to the project of working toward a more just, harmonious, and peaceful world order.

New Cosmopolitanism

The new cosmopolitanism that emerged in the 1990s can be seen in direct response to the mounting pluralism in societies around the globe, to postcolonialism's emphasis on the importance of this pluralism for founding new movements of social and political thought, and to poststructural accounts of the production of subjectivity not as founded on abstract notions of human nature but as proliferating in encounters with language, discourses, and embodied others. Most often appearing in literary theory and cultural studies, this new cultural cosmopolitanism distances itself from its classic political, economic, and moral cousins. Instead, what motivates these theorists' appeals to cosmopolitanism is a focus on it as a way of life and culture. Thus, although they share with classical forms of cosmopolitanism the idea of transforming society through respect for human differences, new cosmopolitan theories do so less through an appeal to abstract notions of human nature or to metaprinciples of autonomy, impartial reasoning, democracy, or justice and more through radical appeals to the way individuals and groups inhabit and create spaces of cross-cultural exchange.

These theorists often identify cosmopolitanism with cultural hybridity and deracination. There is thus a "loosening up" of the universal terms through which cosmopolitanism is often understood. Malcomson (1998) coins the term *actually existing cosmopolitanisms* as a way of suggesting that it is the lived realities of transnational border crossing—both in terms of movement of populations and in the flow and exchange of ideas—that are the defining features of cosmopolitanisms, in the plural. In addition, the idea that cosmopolitanism itself is differentially experienced and theorized according to one's location in the world acts to frame our political attention. What is evident in the literature, as a result, is a built-in reflexivity about the nature of the term itself: how it shifts its meaning according to the time and location in which it is articulated. Hence, discussing cosmopolitanisms, in the plural, means that the content of the term alters according to whether one is discussing postcolonial Mumbai, Byzantium during the Ottoman Empire,

or present-day New York. Thus, these new theories refuse to see cosmopolitanism merely as a reflection of Western Enlightenment principles. What is highlighted here is not so much a unified ideal but a set of ideas that are deeply contingent on specific times and places.

Education and Cosmopolitanism

Classic cosmopolitanism has to date been more influential than the new cosmopolitanisms in educational circles. Here, the task has been to link cosmopolitanism to ideas of global citizenship, to democratic respect for cultures, and to universal forms of rationality—ideas that are largely based on Kant's understanding of cosmopolitanism. Nussbaum's work along these lines in relation to liberal education has been highly influential in promoting the moral and political aims for education. The focus on cosmopolitan citizenship, in particular, has been identified as a key educational issue in coping with the increasing forms of economic, political, and social globalization. Although these features of Kantian cosmopolitanism have been central to educational research, there are also those who have taken a different tack, relying more heavily on the new cosmopolitanisms without necessarily eschewing outright the classic texts in the field. David Hansen (2011), for one, promotes a "cosmopolitan orientation" to the field of curriculum and to teaching and is mindful of the centrality of the arts and cultural practices in creating a sense of responsiveness to increasingly complex forms of interconnectedness. Other scholars offer critiques of classic cosmopolitanism from the point of view of its difficulty in responding to human plurality in education and in facing the antagonisms that go along with diverse communities and their histories. In light of the continued augmentation of cultural, economic, and political interdependency around the globe, educational researchers of all persuasions will no doubt be drawn to cosmopolitanism's appeal for some time to come.

Sharon Todd

See also Citizenship and Civic Education; Globalization and World Society; Multicultural Citizenship; Multiculturalism

Further Readings

Augustine. (2003). *City of God* (H. Bettensen, Trans.). London, England: Penguin Books.

Benhabib, S. (2006). *Another cosmopolitanism.* Oxford, England: Oxford University Press.

Hansen, D. (2011). *The teacher and the world: A study of cosmopolitanism as education.* New York, NY: Routledge.

Heater, D. (2002). *World citizenship: Cosmopolitanism thinking and its opponents.* New York, NY: Continuum.

Held, D. (2005). The principles of cosmopolitan order. In G. Brock & H. Brighouse (Eds.), *The political philosophy of cosmopolitanism* (pp. 10–27). Cambridge, England: Cambridge University Press.

Kant, I. (1991). Idea for a universal history with a cosmopolitan purpose (H. B. Nisbet, Trans.). In H. S. Reiss (Ed.), *Political writings* (pp. 41–53). Cambridge, England: Cambridge University Press.

Kant, I. (1991). Perpetual peace: A philosophical sketch (H. B. Nisbet, Trans.). In H. S. Reiss (Ed.), *Political writings* (pp. 93–130). Cambridge, England: Cambridge University Press.

Kleingeld, P., & Brown, E. (2006). Cosmopolitanism. *Stanford encyclopedia of philosophy.* Retrieved from https://plato.stanford.edu/entries/cosmopolitanism/

Malcomson, S. L. (1998). The varieties of cosmopolitan experience. In P. Cheah & B. Robbins (Eds.), *Cosmopolitics: Thinking and feeling beyond the nation* (pp. 233–245). Minneapolis: University of Minnesota Press.

Nussbaum, M. (1997). *Cultivating humanity: A classical defense of reform in liberal education.* Cambridge, MA: Harvard University Press.

Todd, S. (2009). *Toward an imperfect education: Facing humanity, rethinking cosmopolitanism.* Boulder, CO: Paradigm.

Cost–Benefit and Cost-Effectiveness Analyses

Both cost–benefit analysis (CBA) and cost-effectiveness analysis (CEA) are used to evaluate programs. CBA is used to compare a program's costs with the dollar value of its benefits. CEA relates the cost of a program to its benefits but does not assign a dollar value to the benefits. This entry discusses how each analysis is performed and details some of the difficulties in estimating and calculating program costs and benefits.

Cost–Benefit Analysis

CBA, also called benefit–cost analysis, is a method used by economists to assess the efficiency of a policy or program. The goal of this type of analysis is to quantify all the impacts of a policy in monetary terms, so that they can be easily compared. If

the benefits more than offset the costs of the policy, the policy is thought to enhance efficiency or social welfare (i.e., the sum of the well-being of everyone in society). In mathematical terms, analysts simply subtract costs from benefits (although some prefer to produce a ratio by dividing benefits by costs). If the outcome of this subtraction is positive, then the policy generates "net benefits," is efficient, and should be implemented: The gains to the "winners" more than offset the losses of the "losers." If the calculation is negative, leading to "net costs," then the policy is inefficient and should not be implemented. Two or more policies may be compared directly by calculating the net benefits/net costs generated by each.

The method sounds very simple, but implementation is much more complicated and controversial. It is not always clear whose benefits/costs should be counted, how to monetize benefits/costs, and whether the estimates are accurate. Although economists continue to research and refine many CBA practices, some common "rules of thumb" have emerged to help guide practitioners. A few of these are highlighted below.

A first step in a CBA is to determine whose costs and benefits should be counted, or who has standing. Ideally, one should count all members of the relevant "society" to appropriately judge social welfare, but it is not clear how to define "society" in the first place. In CBA, economists use a geographic definition, including all parties within a particular country, state, city, neighborhood, school district, and so on. The size of the geographic area will depend on how far the analyst believes that the major impacts will extend. For example, if conducting a CBA of an afterschool program for at-risk youths in one school, the analyst might consider the neighborhood or school district the relevant geographic area, but if the school is heavily financed by state taxpayers or if impacts extend beyond district borders (e.g., graduates will take jobs around the state), one could make the case for a state-level analysis.

Importantly, in a true social or economic CBA, one cannot omit any stakeholders within the geographic area from the calculation, although in reality, analysts often do. In that case, the CBA does not measure efficiency but only measures the impacts on the included groups.

Monetizing Impacts

Quantifying and monetizing the impacts of a policy is the most difficult, time-consuming, and controversial aspect of CBA. Of course, some financial costs/benefits are already in dollars and require little extra in the way of estimation, but many others, particularly in education, are much more difficult to monetize. Ideally, even intangible costs/benefits such as time, a sense of community, increased self-esteem, the value of preserving natural habitats, and so on should be monetized, but sometimes this task is nearly impossible. Again, economists have generated some useful shortcuts for monetizing some of the tougher costs and benefits.

For example, to value time gained or lost due to a policy, economists generally agree that a person's hourly wage should be used. A person's wage reflects not only the value to society (i.e., an employer) of one hour of that person's time but it also reflects the rate at which a person is willing to "sell" an hour of her time—so it is also implicitly the value to her of an hour of time, whether used for work or not. In education research, wages are also used as a measure of the value of attending or completing a certain level of education. For example, if a policy improves high school graduation rates, we would monetize this impact by multiplying the number of additional students graduating due to the policy by the average difference in earnings between high school graduates and dropouts.

Discounting

A CBA can be conducted to analyze impacts of a policy over any number of years. When more than one year of impacts are analyzed, the impacts in each year can be added together. However, before adding them up, the impacts beyond the first year need to be "discounted" to make the dollar values equivalent to those in the first year. The idea is that money (or impacts) in the future are worth less to us. Even in the absence of inflation, we would prefer to have $100 today than to trade it for $100 a year from now. To make that trade appealing, we would need to be paid interest. In CBA, rather than interest rates, we use the "social discount rate" (SDR) to change the dollar values in future years back to their equivalent today. The SDR is the average rate that individuals in society make trade-offs over time. The actual value of the SDR is quite controversial, with analysts using anywhere from 0% to about 9%. Most government agencies require a particular rate to make all their analyses comparable: The average SDR as of this writing is about 3%. A simple formula or the "net present value" (NPV) function in Excel is all that is needed to convert the costs/benefits in the

future back to "present value." When all impacts are in present value, the net benefits/net costs of the policy are now called "net present value."

Sensitivity Analysis

After calculating the NPV of the policy, it would seem from the simple description above that the CBA is done. However, no CBA is complete without some form of sensitivity analysis. At its simplest, a sensitivity analysis can entail changing the most uncertain, largest, or most controversial value(s) in the analysis one at a time, holding all else equal to see if the results change (i.e., if NPV goes from positive to negative, or vice versa). More complicated analyses involve changing multiple values simultaneously and using Monte Carlo methods, a class of computational algorithms that rely on repeated random sampling, among others. A good CBA will carefully explain which values drive the findings and which are the most problematic. The analyst should also discuss any impacts that were left out of the analysis and how they might have changed the results (or not) had they been included.

Cost-Effectiveness Analysis

CEA offers an alternative to CBA that, while much less comprehensive, can be more practical in some situations. Rather than measuring efficiency, CEA does just what it says—it assesses the cost-effectiveness of a policy or program. To do this, the analyst compares all the (discounted) costs of a project (calculated as in CBA) to a single quantified, but *not* monetized, benefit, which serves as a measure of effectiveness. The goal is to divide costs by the effectiveness measure to arrive at a ratio of dollars per unit of effectiveness.

For example, if the main goal of building a bridge is to save commuters time, then the analyst would tally the costs of the bridge (e.g., building, maintenance, etc.) and divide them by the number of commuter hours saved. The "cost-effectiveness ratio" might be something like $20 per commuter hour saved. Now the question becomes whether policymakers should build the bridge. Unlike net costs/net benefits, the cost-effectiveness ratio does not give you a decision rule. Is $20 per commuter hour a good deal or a bad one? For CEA to be helpful in this regard, one must compare it with something else. If a second bridge design has a cost-effectiveness ratio of $10 per commuter hour, then this second design is deemed more cost-effective and

should be undertaken instead of the first. CEA is therefore most helpful when there are multiple projects of similar scope under consideration—because it uses a ratio, CEA masks issues of scale—that is, one may generate similar ratios for very large ($100 million/100 million hours = $1/hour) and very small projects ($1 million/1 million hours = $1/hour).

One of the most important issues to consider in CEA is the choice of an effectiveness measure. Because CEA typically uses only one effectiveness measure, all other benefits are ignored. The idea of the effectiveness measure is to measure the outcome that is most indicative of the success of a project. In education, finding a measure of effectiveness may be particularly challenging, since there are often multiple goals of a project (e.g., improved test scores, higher graduation rates, etc.), and they can be difficult to measure. In the case of the after-school program discussed above, the best measure may be the number of dropouts prevented, but this may be hard to evaluate. Instead, one might just use the number of students enrolled in the program. These two measures would yield very different results. To get around this problem, some studies have used combined measures of effectiveness, for example, generating an index calculated from multiple outcome measures as the effectiveness measure. This can be a good solution, but the results can be difficult to interpret, as the ratio becomes dollars per one-unit increase in the index.

Conclusion

In sum, both CBA and CEA can be useful tools in the evaluation of education programs and policies. CBA, while more comprehensive and straightforward, is more time-consuming than CEA. When using either tool, analysts should be careful to explain all assumptions, conduct a sensitivity analysis, and discuss any impacts that have been left out of the analysis.

Stephanie Riegg Cellini

See also Evaluation of Educational and Social Programs: Models

Further Readings

Boardman, A. A., Greenberg, D. H., Vining, A. R., & Weimer, D. L. (2010). *Cost-benefit analysis: Concepts and practice* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

Cellini, S. R., & Kee, J. E. (2010). Cost-effectiveness and cost-benefit analysis. In J. S. Wholey, H. P. Hatry, & K. E. Newcomer (Eds.), *Handbook of practical program evaluation* (3rd ed., pp. 493–530). San Francisco, CA: Jossey-Bass.

Layard, R., & Glaister, S. (Eds.). (1996). *Cost-benefit analysis* (2nd ed.). Cambridge, England: Cambridge University Press.

Levin, H. M., & McEwan, P. J. (2001). *Cost-effectiveness analysis: Methods and applications* (2nd ed.). Thousand Oaks, CA: Sage.

Counts, George

See Social Reconstruction

Creative and Lateral Thinking: Edward de Bono

Edward de Bono is renowned for his criticism of logical, linear, and critical thinking and for his range of thinking techniques to facilitate potential creative abilities that emphasize thinking as a learnable skill and deliberate act. He originated the concepts of lateral thinking (literally sideways thinking) and parallel thinking to distinguish the many techniques for deliberative creative thinking that he has developed from what he considers to be normal perceptions regarding creativity and innovation.

De Bono (1994) draws attention to traditional critical thinking as a judgmental and adversarial process and compares it with parallel thinking, which he claims emphasizes cooperative and coordinated thinking. Critical thinking, he says, has its foundations in a method of philosophizing, known as the Socratic method, first used by the ancient Greek philosopher Socrates and developed further by Plato and Aristotle (whom together de Bono calls the "Gang of Three"). However, his contention is that the Socratic method is focused on discovering the truth and uses adversarial techniques such as refutation of opposition, which rests on is/is not, true/false, either/or dichotomies—a form of argumentation in which contradictory claims are argued to strengthen one side's argument and diminish the opposing position. In practice, each interlocutor takes a different position and points out contradictions to attack the other position in order to prove the other side wrong and, consequently, force a judgment.

De Bono claims that this form of argumentation, which for him is synonymous with the Socratic method, pervades Western thought and that it is "intrinsically fascist in nature" due to its appeal to adversarial thinking. He does not deny a place for the Socratic method but rather argues that it has deep-seated inadequacies no longer able to deal with the kind of radical change that has become a feature of the modern world. It is not so much the search for truth that is required for the increasing complexity of contemporary societies but the development of creative and more effective approaches to problem solving. Subsequently, he introduced the term *parallel thinking* to describe what he considers to be a fundamentally different method of thinking; not only does it reject the adversarial framework in favor of a cooperative model for thinking, but it emphasizes possibility and "designing forward" from the "field of parallel possibilities" by placing claims in parallel instead of in opposition to each other. To use de Bono's preferred terms, useful outcomes are obtained by "design" rather than by "judgment."

De Bono has many formal techniques that can be deliberately applied to teach structured, parallel thinking. His most notable technique, lateral thinking, aims at restructuring thought patterns from which new combinations can arise. De Bono assumes that lateral thinking is the basis of insight and creativity because it is for changing concepts and perceptions and, therefore, is most effective prior to the use of traditional methods of vertical or logical thinking. Its value lies especially in problem solving since it generates alternatives, challenges previously held assumptions, and develops innovative thinking. He argues that thinking can be more effective through direct teaching of thinking as a skill rather than through resisting habitual thinking patterns. In doing so, de Bono makes a distinction between thinking and intelligence and places emphasis on the development of *metacognitive* thinking skills. Accordingly, it is necessary to be conscious of how we think, for new thoughts "can be applied only if one is aware of one's own thinking or thought processes, and understands new thinking techniques" (Burgh, 2005, p. 26).

De Bono has developed formal techniques for deliberate creative thinking, which can be contrasted to coping or reactive thinking strategies. The latter can function only when there is something to react against; it does nothing to produce proposals. Deliberate creative thinking, on the other hand,

focuses attention on what he calls mapmaking—a type of thinking that requires a certain detachment.

De Bono's largest curricular program is the Cognitive Research Trust (CoRT) Thinking Program. It uses strategies, called attention-directing tools or devices for generating ideas, to direct the attention of students to aspects of situations that might have otherwise been neglected before they make decisions. Some of the techniques used in CoRT are as follows: PMI (Plus, Minus, Interesting); CAF (Considering All Factors); C&S (Consequences and Sequel); AGO (Aims, Goals, Objectives); FIP (First Important Priorities); APC (Alternatives, Possibilities, Choices); and OPV (Other Point of View). The main aim of the CoRT thinking lessons is to improve planning and decision making. By employing the attention-directing tools of CoRT, students apply the skill of operacy, a term coined by de Bono to describe action thinking, which he maintains ranks alongside literacy and numeracy.

Another use of attention-directing tools is the Six Thinking Hats that de Bono designed for teaching structured parallel thinking with groups of participants. The Six Hats supposedly represent every basic type of thinking. Each hat has a different color that provides the name for the hat as well as its related function. The white hat suggests neutrality and objectivity. The red hat deals with emotional views, feelings, hunches, and intuitions. The black hat represents the devil's advocate. The yellow hat covers hope and positive thinking. The green hat expresses creativity and new ideas. The blue hat is concerned with thinking about thinking, the organization of the thinking process, and the use of the other hats. Throughout the discussion, hats are used and exchanged, although it is not necessary that people always consciously use one hat or another.

The purpose of the Six Hats is to provide a tangible way of translating intention into performance by simplifying and unscrambling thinking so that the thinker can deal with one mode at a time. It was also designed to allow a switch in modes of thinking by deliberately putting on a particular metaphorical hat depending on which mode of thinking is required. De Bono contends that the artificiality of the thinking hats provides a formality and a convenience for requesting a certain type of thinking either by oneself or by others. Each thinker follows exclusively the mode of thinking indicated by the hat that is being used. The metaphorical use of the thinking hats also establishes rules for the game of thinking, and anyone involved in the game will be aware of these rules. The Six Thinking Hats framework, therefore, provides a process that can be self-monitoring.

De Bono's efforts as an advocate for lateral thinking and creative thinking as an essential skill for creativity and innovation have not gone without criticism. Robert Weisberg, a cognitive psychologist, argues that there is insufficient evidence for the effectiveness of lateral thinking and that the creative process is better described as a process of logical thinking, trial and error, feedback, and reflection. Another criticism is that his description of traditional Western thinking overemphasizes the more extreme forms of adversarial argument apparent in some traditional methods of classroom practice, assuming that all Western philosophical thinking is *necessarily* adversarial. An alternative view of Socrates is that the purpose of his method of philosophical inquiry was to show people how to think for themselves rather than to destroy another person's argument for the sake of proving one's own position. Indeed, other thinking frameworks, such as Philosophy for Children, founded on nonadversarial conceptions of philosophy, also employ the deliberate teaching of skills to encourage creative and divergent thinking. This raises a further criticism of de Bono that while he has been highly successful in gaining the attention of a wide readership, his contributions are not particularly original in substantive content but are restatements of the previously developed concepts of "convergent thinking" and "divergent thinking" without historical or scholarly attention given to key figures in the field of critical thinking and creativity in which he is situated.

Gilbert Burgh

See also Critical Thinking; Metacognition; Socrates and Socratic Dialogue

Further Readings

de Bono, E. (1994). *Parallel thinking: From Socratic thinking to de Bono thinking*. Melbourne, Victoria, Australia: Penguin Books.

Burgh, G. (2005). From Socrates to Lipman: Making philosophy relevant. In D. Shepherd (Ed.), *Creative engagements: Thinking with children* (pp. 25–31). Oxford, England: Inter-Disciplinary Press.

Moseley, D., Baumfield, V., Elliott, J., Gregson, M., Higgins, S., Miller, J., & Newton, D. (2005). De Bono's lateral and parallel thinking tools. In D. Moseley (Ed.),

Frameworks for thinking. Cambridge, England: Cambridge University Press.

Weisberg, R. W. (1993). *Creativity: Beyond the myth of genius* (2nd ed.). New York, NY: W. H. Freeman.

CREATIVITY

Over the centuries, philosophers and researchers with different disciplinary backgrounds have debated how creativity is most appropriately conceptualized. There is agreement that fundamentally creativity involves framing new approaches or new questions that enable transition from what is to what might be, and that generation of outcomes (ideas or products) that are considered inherently novel and original are manifestations of creativity. It can also involve framing new questions, generating new ideas, and reflection on both. In this entry, the analysis of creativity that is presented is informed by research in the arts, social sciences, and computational science, and the implications for educational theory and practice are discussed.

Manifestations of creativity can be arranged on a continuum. One end denotes low originality and low impact, or "little-c" creativity (sometimes referred to as "everyday creativity')—for example, generating and enacting an idea that is new to oneself or a small group of others, such as would be involved in making a meal with unusual ingredients, or proposing a change or improvement in a school community. Margaret A. Boden (2004) refers to such novelty at a personal level as psychological and the idea as P-creative. Anna Craft (2001) refers to the same phenomena as "little-c" or personal effectiveness and lifewide resourcefulness, while James Kaufman and Ronald Beghetto (2009) distinguish mini-c creativity (personal meaning making) from everyday creativity or little-c (creativity shared with others), and they introduce "pro-c" (professional) creativity. The other end of the continuum donates high originality and impact, or "big-C" creativity (such as possessed by Gandhi or Einstein); this is what Boden calls "H," or "historical," creativity that changes the world, or that generates novel ideas that transform paradigms.

From the Divine to the Human: Three Psychological Traditions

In premodern perspectives, superhuman force was seen as the source of creativity. For example, Plato referred to the Muses as the source of inspiration for scientists, musicians, artists, and poets. This classical perspective saw the creator as passive and as "receiving" divine inspiration, indeed being "an empty vessel that a divine being filled with inspiration" (Sternberg, 2003, p. 90). This perspective, Sternberg argues, prevented its exploration using scientific methods. By contrast, since the Renaissance humans have been recognized as active agents in creativity (Sawyer, 2006) and since then, the concept has been investigated by researchers. Psychologists were drawn to the study of this human capacity, and they developed a particular focus on what an understanding of creativity can tell us about learning. During the 20th century, three traditions in particular have been influential: cognitive, psychometric, and humanistic.

Cognitive Approaches

Concerned with modeling, the earliest cognitive psychology work was undertaken by Graham Wallas (1926), who identified four phases in the creative process: preparation, incubation, illumination, and verification. Later researchers identified four "dimensions": *product* (creative outcomes), *person* (characteristics or tactics of creative individuals), *process* (habits or patterns), and *persuasion* (impression that convinces others that something is creative). Elizabeth Watson (2007) extended this by adding *place*, recognizing the importance of both environment and culture; and Aaron Kozbelt, Ronald Beghetto, and Mark Runco (2010) introduced *potential*, with an emphasis on learning, recognizing that potentially creative ideas may first emerge as unexpected ideas, which in the context of the classroom may be easily dismissed as off-topic and yet may be signifiers of creative potential.

Some cognitive work focuses on habitual creativity, drawing on both psychology and other related disciplines to explore how habits evolve creatively in dynamic contexts; some research foregrounds tensions between automatic reflex behavior and habitual creativity.

Psychometric Approaches

Efforts to measure degrees of creativity using psychometric methods were begun by Joy Paul Guilford in the 1950s; his work generated interest in tests that could throw light on individual differences. Focused on everyday creativity, offering ease of both administration and scoring together with the opportunity to sample large populations, they proved popular (Sawyer, 2006). Psychometric approaches have been

used to explore creativity, the creative personality or behaviors, characteristics of creative products, and key aspects of environments that successfully foster creativity. The Torrance Tests of Creative Thinking (1974), involving figural and verbal tasks for use with children and adults, are perhaps the most widely used and have been translated into many languages (Baer & Kaufman, 2006). The verbal element contains activities such as unusual uses, unusual questions, ask and guess, and just suppose. The figural element includes tasks focusing on picture completion, picture construction, and repeated figures of circles or lines. The tests prompt responses, which are then scored for their originality, flexibility, fluency, and elaboration together with abstractness of titles and resistance to premature closure. In addition, Hans Jellen and Klaus Urban (1986) developed a test focused only on image production: the Test for Creative Thinking—Drawing Production, which can be used from kindergarten. All these tests have focused on divergent thinking. More recently in France, Todd Lubart, Maud Besançon, and Baptiste Barbot (2011) have developed tests of creative potential, which incorporate both divergent (or exploratory) and convergent (or integrative) thinking designed for use with children aged around 6 to 14 years. These focus, through both the graphic/artistic domain and the verbal/literary domain, on the prediction of creative potential. For divergent thinking, graphic tasks are generating an abstract drawing and generating a concrete drawing, and verbal tasks are creating story beginnings and endings; for convergent thinking, graphic tasks are creating a drawing based on given elements and creating a story based on a title or on characters. The tests, scored by trained judges through an electronic system, generate a creativity profile for each participant.

It has been argued that as well as measuring creativity, these tests can serve as tools to enhance it. On the other hand, the psychometric stance has been criticized for its lack of recognition of the impact of context on "performance," for measuring not creativity but aspects of intelligence, for defining creativity too narrowly, and for correlating weakly with other indicators of creative behavior.

Some psychometric approaches have focused since the mid-20th century on aspects of personality or behavior rather than on the divergent thinking that marks creativity. For example, openness to experience, autonomy, and introversion are emphasized by Gregory Feist (1999); others emphasize risk-taking orientation, tolerance of ambiguity, curiosity, and internal measures of evaluation (e.g., Sawyer, 2006).

Humanistic Approaches

An approach that has its focus on the personal perspective and is concerned with motivation was initiated by Abraham Maslow (1943) and Carl Rogers (1954). Maslow's "hierarchy of needs" modeled how "self-actualized creativity" is only feasible after all basic needs are satisfied, while Rogers's work focused on the role of positive and unconditional regard in developing psychological safety for creative behavior.

From What Is to What Might Be: New Directions

These traditions dominated the early-21st century psychological research. However, as Richard Caselli (2009) argues—drawing from literature spanning neurobiology, psychology, cognitive science, and neuroeconomics—creativity involves bridging the gap between what is (i.e., what already exists) and what should be (the enactment of imagination). This has resonances with Craft's work on "possibility thinking," which emphasizes the transition from *what is* to *what might be* through both "what if?" questions and "as if" behaviors.

Creativity scholars are themselves engaged in transitions to what might be, in the growing recognition of creativity as a social phenomenon having emotional dimensions as well as with motivation, mood, and interaction as key elements. Exploring how high-quality creative ideas are produced is as key an element in much social research as is the ethical dimension. In a world characterized by radical uncertainty, some argue that *wise* creativity (Craft, Gardner, & Claxton, 2008) is necessary, in other words considering the potential impact of creative ideas and actions. Such scholars argue that attending to the impact of ideas on wider communities and contexts is vital to sustained futures; this is referred to as wise, humanizing creativity (Chappell & Craft, 2011; Craft, 2013).

Anna Craft

See also Aesthetic Education; Creative and Lateral Thinking: Edward de Bono; Multiple Intelligences: Howard Gardner

Further Readings

Baer, J., & Kaufman, J. C. (2006). Creativity research in English-speaking countries. In J. C. Kaufman & R. J. Sternberg (Eds.), *The international handbook of*

creativity (pp. 10–38). New York, NY: Cambridge University Press.

Boden, M. A. (2004). The *creative mind: Myths and mechanisms* (2nd ed.). London, England: Routledge.

Caselli, R. J. (2009). Creativity: An organizational schema. *Cognitive and Behavioral Neurology, 22,* 143–154.

Chappell, K., & Craft, A. (2011). Creative learning conversations. *Educational Research, 53*(3), 363–385.

Craft, A. (2001). Little c creativity. In A. Craft, B. Jeffrey, & M. Leibling (Eds.), *Creativity in education* (pp. 45–61). London, England: Continuum.

Craft, A. (2013). Possibility thinking and wise humanising educational futures. *International Journal of Educational Research, 61,* 126–134. doi:10.1016/j.ijer.2013.02.005

Craft, A., Gardner, H., & Claxton, G. (2008). *Creativity, trusteeship, and wisdom.* Thousand Oaks, CA: Sage.

Feist, G. (1999). Influence of personality on artistic and scientific creativity. In J. Sternberg (Ed.), *Handbook of creativity* (pp. 273–296). Cambridge, England: Cambridge University Press.

Jellen, H. G., & Urban, K. K. (1986). The TCT-DP: An instrument that can be applied to most age and ability groups. *Creative Child and Adult Quarterly, 3,* 138–155.

Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four c model of creativity. *Review of General Psychology, 13*(1), 1–12.

Kozbelt, A., Beghetto, R. A., & Runco, M. A. (2010). Theories of creativity. In J. C. Kaufman & R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (pp. 20–47). Cambridge, England: Cambridge University Press.

Lubart, T., Besançon, L., & Barbot, B. (2011). *Evaluation of potential of creativity.* Paris, France: Hogref.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396.

Rogers, C. R. (1954). Towards a theory of creativity. *ETC: A Review of General Semantics, 11,* 249–260.

Sawyer, R. K. (2006). *Explaining creativity: The science of human innovation.* New York, NY: Oxford University Press.

Sternberg, R. J. (2003). *Wisdom, intelligence, and creativity synthesized.* New York, NY: Cambridge University Press.

Wallas, G. (1926). *The art of thought.* New York, NY: Harcourt, Brace.

Watson, E. (2007). Who or what creates? A conceptual framework for social creativity. *Human Resource Development Review, 6,* 419–441.

CRITICAL RACE THEORY

Critical race theory (CRT) is a set of theories that argues that racism is normal, not aberrant, in U.S. life. Legal scholars proposed the notion of CRT after concluding that even their more liberal White colleagues did not fully understand the incredible burden that race put on the people of color, despite advances in civil right rulings and legislation. Many liberal White legal scholars understood that the law and its application were unfair to a variety of people because of their status identities—race, class, gender, sexuality, immigrant status, language use, or ability. Their solution to the built-in inequality of the law was to propose critical legal studies in workshops that analyzed legal scholarship and legal precedence. However, in the midst of one of the workshops, Black legal scholars recognized that even within this alternate space, issues of Black life and experience with the law continued to be marginalized. Realization of this marginalization gave birth to CRT—a place in legal scholarship where race would be central to analysis of inequality.

Early legal scholars in CRT include Derrick Bell (who is widely regarded as the "Father of Critical Race Theory"), Kimberly Crenshaw, Richard Delgado, Patricia Williams, Lani Guinier, Mari Matsuda, Charles Lawrence III, Neil Gotanda, Cheryl Harris, Linda Greene, Gary Peller, Kendall Thomas, John O. Calmore, and others. They argued that, in civil rights law, the traditional approach to addressing inequality through legislation and filing *amicus* briefs was too slow and ineffective to change the social and civil status of African Americans and other non-Whites. Indeed, CRT scholars argued that civil rights laws are never enacted unless those laws also benefit Whites.

On July 2, 1964, President Lyndon B. Johnson signed the Civil Rights Act, the most sweeping civil rights legislation since Reconstruction. The Civil Rights Act bans any discrimination based on race, ethnicity, color, religion, or national origin. On June 4, 1965, President Johnson gave a speech at historically Black Howard University in which he explained that civil rights law alone was not enough to correct inequality, and he provided the underlying rationale for affirmative action:

> You do not wipe away the scars of centuries by saying: "now, you are free to go where you want, do as you desire, and choose the leaders you please." You do not take a man who for years has been hobbled by chains, liberate him, bring him to the starting line of a race, saying, "you are free to compete with all the others," and still justly believe you have been completely fair. . . . This is the next and more profound stage of the battle for civil rights.

We seek not just freedom but opportunity—not just legal equity but human ability—not just equality as a right and a theory, but equality as a fact and as a result. (Chace, 2011)

On September 24, 1965, President Johnson issued Executive Order 11246, which required government contractors to "take affirmative action" toward prospective minority employees in all aspects of hiring and employment. Contractors must take specific measures to ensure equality in hiring and must document these efforts. On October 13, 1967, the order was amended to cover discrimination on the basis of gender as well.

The inclusion of gender as a part of the federal affirmative action mandate meant that the beneficiaries of the order would now also be White women. Since there are more White women than members of any one group of people of color, the possibility arose that the hard-fought civil rights benefits would now flow into the White community.

The major tenets of CRT include the claim that racism is normal, not aberrant, and constitutive of the fabric of U.S. life and culture, a belief that much of reality is socially constructed, the use of storytelling (or more accurately, counterstorytelling) as a way for marginalized groups to address their marginalization, use of critical social science as a tool for analyzing inequality in the society, and interest convergence as a vehicle for moving civil rights agendas forward.

The belief that racism is normal is a difficult one for most Americans to accept. Given a cultural narrative of never-ending progress and noble purpose, to suggest that racism is both a normal and predictable condition in the nation meets with denial and active resistance. Thus, those who point out the ongoing pattern and systemic nature of racism are discounted as malcontents or "racial opportunists." Critical race theorists identify "microaggressions" that speak to the daily racial indignities that people of color suffer. For instance, common everyday occurrences such as being ignored by a merchant, challenged as to one's ability to pay, or being mistaken as a subordinate reflect the kinds of microaggressions that people of color experience. For CRT scholars, it is the accumulation of these events that is telling rather than the more dramatic or tragic events that occur and gain public attention.

Derrick Bell (1993) codified the "everydayness" of racism by promoting what he termed *the rules of racial standing*:

1. No matter what their experience or expertise, blacks' statements involving race are deemed "special pleading."

2. Not only are blacks' complaints discounted but black victims of racism have less impact as court witnesses than whites.

3. Few blacks avoid diminishment due to their racial standing.

4. When a black person or group makes a statement or takes an action that the white community or vocal components thereof deem "outrageous," the latter will actively recruit blacks willing to refute the statement or condemn the action.

5. True awareness requires an understanding of the Rules of Racial Standing. As an individual's understanding of these rules increases, there will be more and more instances where one can discern their workings. (pp. 111–121)

The notion that much of reality is socially constructed is not a new one; however, the primary research paradigms through which social scientists work suggest that an independent reality is being empirically investigated. Legal scholars know that the work of American jurisprudence is about constructing a reality—to argue a case and a point of view. More pointedly, the very concept of race is a social construction—natural science refutes the existence of race as a viable category, but social science uses it as a primary organizing status category, and sociologists, psychologists, political scientists, and educationists all use it. Thus, the tension between race as a social construct and race as a biological reality forces scholars to deal with the shifting nature of knowledge and to question heretofore "epistemologically verified" notions of the social world.

Storytelling (or counterstorytelling) is an important tool for the CRT scholar. These stories can be fantastical (e.g., see "Space Traders," in Bell, 1993, chap. 9) or realistic, but what they have in common is that they are fictional tales designed to illustrate legal and/or moral dilemmas produced by the way laws, policies, and statutes are developed and implemented. The fantastical storytelling can take on the characteristics of the literary genre known as magical realism, commonly found in the literature of Latin America and described by Schroeder (2004). Challengers to CRT point to storytelling as nonscientific, lacking rigor, and antithetical to the scholarly process.

However, CRT scholars push back with claims that all scholars—especially legal scholars—tell stories, but that those stories may take the form of reports, logs, or descriptions of so-called empirical claims.

CRT scholars employ critical social science as a tool for analyzing racial situations and legal precedence. This means that their work starts from a place where inequity is assumed. That inequity might deal with race, class, gender, sexuality, disability, and so on; scholars such as Pierre Bourdieu (1986), Michel Foucault (2002), Nancy Fraser (2003), Paulo Freire (1970), or Antonio Gramsci (2011) can be instructive in providing an alternative vision of the social world—one that assumes the existence of inequality and the need to address it.

Another primary tenet of CRT is an acceptance of the interest convergence principle. This notion was used by Bell (1980) to argue that Black social, economic, and civil concerns will be addressed only when they intersect or converge with those of Whites. Thus, even among our most cherished civil rights laws, CRT scholars uncover the way these laws also serve White interests. For example, the landmark *Brown v. Board of Education* (1954) decision is touted as one of the Supreme Court's finest moments. The ruling that "separate is inherently unequal" seemed on the surface to be solely a commitment to racial equality. Bell (1980) and later Mary Dudziak (1995) argued that despite the seeming civil rights meaning of the decision, actually it also served as a foreign policy move during the Cold War to signal to nonaligned states that the United States provided fair and equal treatment under the law to its Black citizens. However, more than 50 years past *Brown*, the majority of Black and Brown children attend deeply segregated schools. Even in those places where school desegregation was attempted, we see retrenchment from the law.

CRT is approximately 20 years old and is exploding into a variety of areas beyond law, such as sociology, education, anthropology, economics, cultural studies, and other fields. In the July 2011 issue of the *Connecticut Law Review*, Crenshaw (2011) explores the viral-like spread of CRT in many other fields. The work challenges scholars to consider the way race continues to matter even in a society that wants to identify itself as either "colorblind" or "postracial." In 1995, Ladson-Billings and William F. Tate introduced CRT into education research and theorizing. By analyzing education inequity through the lens of CRT, they argued that race still matters; that the United States is a nation built on property

rights, not human rights; and that the intersection of race and property provides a powerful rubric for making sense of ongoing inequality in U.S. schools. Ladson-Billings and Tate used CRT to analyze school funding, assignment to special education, discipline practices, curriculum as a form of property, and testing and assessment.

Gloria Ladson-Billings

See also Affirmative Action; Equality of Educational Opportunity; Ethnicity and Race; Freire, Paulo: *Pedagogy of the Oppressed* and Critical Pedagogy; Legal Decisions Affecting Education; Racism and Multicultural Antiracist Education; Social Class

Further Readings

Bell, D. (1980). *Brown v. Board of Education* and the interest-convergence dilemma. *Harvard Law Review, 93*, 518–533.

Bell, D. (1993). *Faces at the bottom of the well: The permanence of racism*. New York, NY: Basic Books.

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). New York, NY: Greenwood Press.

Chace, M. (2011, Winter). Affirmative inaction. *The American Scholar*. Retrieved from http://theamericanscholar.org/affirmative-inaction/

Crenshaw, K. (2011). Twenty years of critical race theory: Looking back to move forward. *Connecticut Law Review, 43*(5), 1253–1352.

Delgado, R., & Stefancic, J. (2001). *Critical race theory: An introduction*. New York, NY: New York University Press.

Dudziak, M. (1995). Desegregation as a cold war imperative. In R. Delgado (Ed.), *Critical race theory: The cutting edge* (pp. 110–121). Philadelphia, PA: Temple University Press.

Foucault, M. (2002). *The archaeology of knowledge*. New York, NY: Routledge.

Fraser, N. (2003). Mapping the radical imagination: Between redistribution and recognition. *Constellations, 12*(3), 295–307.

Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Continuum.

Gramsci, A. (2011). *Letters from prison* (Vol. 1, reprint). New York, NY: Columbia University Press.

Ladson-Billings, G., & Tate, W. F. (1995). Toward a critical race theory of education. *Teachers College Record, 95*, 47–68.

Schroeder, S. (2004). *Rediscovering magical realism in the Americas*. Westport, CT: Praeger.

CRITICAL THEORY

The term *critical theory* (CT) was coined by Max Horkheimer (1895–1973) in 1937 to describe a politically committed response—grounded in the German philosophical tradition of Immanuel Kant, Friedrich Hegel, and Karl Marx—to the problems of modernity and, in particular, to the catastrophic events and social changes of the first half of the 20th century. CT aims to achieve the emancipation and transformation of individuals and society through human action. Theory and practice form a single process, and philosophy is put to work to provide an analysis and critique of society, leading to social change. The political significance of the action of educating is brought to the fore, and education takes a central place as a means of promoting individual autonomy and addressing issues of prejudice and authoritarianism. CT also has relevance to the nature of education research as an interdisciplinary intellectual enterprise that seeks to negotiate the relationship of theoretical research with empirical methodologies.

CT has shifted through a number of distinguishable phases since 1923, when the first generation of Marxist social theorists formed the Institute for Social Research affiliated with Frankfurt University. The principal members of what came to be known much later as the Frankfurt school were Max Horkheimer, Theodor Adorno (1903–1969), and Herbert Marcuse (1898–1979). Many others were associated with the school, including the literary critic and philosopher Walter Benjamin (1892–1940), the psychologist Erich Fromm (1900–1980), and the sociologist Friedrich Pollock (1894–1970). Most prominent among the second-generation critical theorists is Jürgen Habermas (1929–), whose theory of communicative action attracts continuing interest in education theory seeking to understand the role of schools in developing democratic values and practice. *Critical pedagogy*, a term coined in 1983 by Henry Giroux (1943–), has its origins in CT and describes educational praxis (theoretically informed practice that has an emancipatory and egalitarian premise).

First Generation: The Frankfurt School

The Marxist orientation of the Frankfurt school theorists led them to expect the end of capitalism as its own internal logic unfolded. The Russian Revolution of 1917 had briefly seemed to confirm the correctness of this prediction, but by the time of the founding of the institute, Russia had undergone years of civil conflict, with ruinous consequences, and the violent suppression of German communists under the nonrevolutionary moderate socialism of the Weimar Republic confounded the revolutionary hopes of the political left there. Accepting neither Moscow nor Weimar, the institute returned to the philosophical roots of Marxian theory. The members of the school were deeply affected by the rise of Nazism and spent much of the next two decades in exile, mainly in the United States where they found sanctuary in American universities. Perhaps the greatest personal and intellectual tragedy for the school during this period was the death by suicide of Benjamin in France in 1940.

CT defines itself in terms of liberation from circumstances that enslave; the purpose of philosophy is to make a significant difference to human life, including its material conditions. This transformation is to be achieved through analysis and critique, which leads to a desire for change. However, what confidence the members of the school shared that human happiness and well-being might be increased was strictly circumscribed by what they believed to be ever-tightening limitations on autonomous activity. Constraints on human freedom that were formerly theological and feudal seemed increasingly to shape intellectual activity by way of certain insidious social changes. Immediate historical circumstances also shaped CT: As the Great Depression was followed by 16 years of increasing political and social chaos in Europe, feelings of absolute loss caused the members of the Frankfurt school to abandon, to a great extent, what had only ever been a cautious optimism about human happiness.

Against this background, nonetheless, the school never entirely lost its faith in the transformative power of education. In his lecture "Education after Auschwitz" (1966), Adorno argues that, in view of the monstrous events that took place, all education should have the end of fostering critical self-reflection and self-determination and of countering the barbarous and violent tendencies of authoritarianism and the exaggerated attachment to technological thinking and to collective identity. In "Taboos on the Teaching Vocation" (1969), he outlines how this ambition for education stands in sharp contrast to the way in which schools can represent an authoritarian, hierarchical, and frequently violent, prototype for fascism. Education for autonomy, Adorno

recognizes, is constantly at risk of misrepresentation and attack; children's capability for independent thinking may be damaged at a very early age, and yet democracy depends on it.

The radical student movement of the 1960s turned to the Frankfurt Institute for inspiration and support and pirated copies of the members' earlier works circulated widely. Marcuse willingly became the intellectual mentor of the student leaders with a number of articles that established his position as the voice of the new left; and Habermas, the relative newcomer to the institute, addressed student conferences and spoke to student leaders in Germany. However, with the exception of Marcuse, the relation of the members of the institute to the student activists was rather fraught and complex. Aspects of their writings resonated strongly with the students' revolutionary aspirations and mood, but in the end, the students wanted something that CT could not give them—an uncritical endorsement of their actions and ambitions. It is important to understand that, in spite of its Marxist origins and its emphasis on praxis, CT is not an ideology but an open-ended methodology in which the contradictions and omissions of a particular social world are explored from within to reveal other possibilities and new ways of being. This is *immanent criticism*, which can be understood in contradistinction to an ideological critique based on fixed and transcendent principles.

The activity of exposing the omissions and contradictions between the principles and practice of a given society has meant that CT is frequently described as negative. The refusal to propose an alternative way of organizing society should be understood not as a result of a sour negativity or quietistic abnegation but, rather, as the result of a steadfast commitment to human freedom. The abuse of ideologies during these decades adequately explains the critical theorists' cautious reticence about constructing the future; but it is also a result of a deeper understanding of the role of philosophy as interpretive and explanatory. Hegel's "Owl of Minerva," that spreads its wings at dusk, signifies the task of philosophy, which is the intellectual apprehension of mature reality—at the end of the day, as it were, rather than before it dawns. For the critical theorists, philosophy has a formative role in the maturation of reality, but it is, and should be, backward looking. An important strand of CT is the philosophy of history, particularly as it features in the work of Benjamin, who combined an account of childish and of historical consciousness to formulate a distinctive, somewhat idiosyncratic, theory of hope and historical redemption.

The idea that critique must be grounded in, or immanent in, a particular system or society raises the specter of relativism. The realization that societies are plural and complex means that appeal to the idea of community can result in an unnerving loss of certainty. Aversion to dogmatism and utopian theory seems to entail that we give up any objective or transcendent normative basis for critique, except for the rather second-rate version of normativity provided by each particular group or society. However, the caution exercised by the members of the Frankfurt school with regard to transcendent normativity—that is, to a standard for judgment that comes from a system or theory unrelated to the world as it is—not only reflects their historical context but also has its roots in the understanding they shared of the relation between the universal concept or theory and the particular circumstance or experience. Truth does not reside in one or the other but in the dynamic relation of the two. The imposition of the universal over the particular denies the reality of experience or forces that reality to conform to an idea; the assertion of the particular over the universal, on the other hand, results in chaotic activity without direction or purpose. CT gives priority or finality to neither theory nor lived experience. Truth is liable to change, but this does not mean that it is an illusion. This is a distinctly Hegelian insight that truth is transitory and incomplete, that each concept is "sublated" by a subsequent one. The result of this is caution and humility rather than relativism or the abnegation of responsibility for present suffering.

This appeal to public discourse as a source of normativity can be interpreted as falling squarely within the Enlightenment tradition wherein truth flows out of the rational activity of autonomous individuals who are given free voice and where their opinions are open to public critique. The idea that reason needs the checks and balances of public discussion to transcend the merely subjective is one way in which community may be understood as a source of normativity.

Interdisciplinary Method

The immanent criticism favored by the critical theorists, then, situates critique within life as it is—within the practices, traditions, values, and beliefs of a particular society; and though it is not constrained by these circumstances and can postulate

ways in which things could be otherwise, it holds to the principle that critique ought not to be detached. However, CT also steadfastly rejects positivism in social research, because of the way in which it misrepresents social phenomena as "givens," and sees theoretical research as pure, neutral, self-substantive, and ahistorical. Horkheimer describes this empirical bias as resulting in the *reification* of social facts, which is inherently conservative rather than transformative or revolutionary, and is the foundation of the view that the purpose of knowledge and inquiry is the domination of nature.

The tension between the empirical and theoretical approaches to social research became a very present reality to critical theorists working in the context of American universities, where social research was almost exclusively empirical and pragmatic. In addition to the desire to combine the two social research traditions on theoretical grounds, they faced a pressing practical necessity to work with their American colleagues. The most important piece of research to emerge from this exigency was *The Authoritarian Personality*, first published in 1950, an extensive study of prejudice that drew on psycho-scientific methodologies to refine and support the formulation of ethical and political commitments.

Second Generation: Habermas and Communicative Action

Habermas is recognized as one of the most important social theorists of the postwar era. His work is prolific and interdisciplinary and owes much to his early participation in the Frankfurt school, where he worked as research assistant to Adorno from 1956 (though the direct association was relatively short lived). Habermas has written little that is explicitly on the topic of education, but his ideas have been highly significant for educational discussions of democracy, participation, and citizenship and for the development of action research as an educational methodology.

Habermas's contention that knowledge is not neutral but socially constructed, and that what counts as worthwhile knowledge needs to be interrogated to discover the particular interests that are served by it—what he calls "knowledge-constitutive interests"—has been particularly influential in critical pedagogy and reflects the emancipatory commitments of CT. He takes a critical view of the hegemony of the empirical-scientific model of knowledge, for which he uses the term *cognitive-instrumental*

rationality, and contrasts it with another aspect of reason, which he calls *communicative action/reason*, which is the mode that has often been used by people in everyday situations to reach understanding and agreement and to coordinate their actions. This idea of communicative reason is given full articulation in his 1981 work *The Theory of Communicative Action*. As with the approach of his CT predecessors, this was not an outright rejection of scientific methodology but a reconfiguration of it in the context of a broader, more comprehensive concept of reason. Habermas's argument is that the suppression of communicative reason in the modern era has allowed technocratic approaches to dominate all aspects of life without the rudder of political and ethical deliberation, resulting in the technologically enabled atrocities of the 20th century that have mortally wounded modern faith in progress.

Communicative action is the mode of the *public sphere*, a concept that Habermas derives from Hannah Arendt's *space of appearance*, and which he first develops in *The Structural Transformation of the Public Sphere*, published in 1962. The public sphere is envisioned as an inclusive space for rational-critical deliberation between free and equal individuals committed to reaching an agreement on matters of common concern and common good. Habermas traces the genesis of the public sphere to 18th-century Europe and the beginnings of Enlightenment thought and argues that in the rediscovery of the norms of the public sphere can be found a defense of modernity's "unfinished project" and a counter to the dystopian analysis of modernity found, for example, in Adorno and Horkheimer's *Dialectic of Enlightenment*, first published in 1944. In communicative action, in the structure of discourse itself, Habermas looked for the source of normativity that would give a positive impetus to critique. The evident fact that when we voluntarily enter into a discourse, we do so on the assumption that agreement is possible may be further interrogated to reveal the standards and rules inherent in communication itself.

Like John Dewey, Habermas focused on the essential importance of deliberative communication to healthy democracy. Democracy is not simply a matter of extending participation. The erosion of the function of the public sphere has come about in a number of ways, none of which necessarily entails reduced participation, for example, low levels of educational attainment, control of information by commercial interests, and the debasement

of public opinion to an aggregation of preferences. Communicative action requires freedom from all such constraints and coercion that would compel participants to reach a false consensus. It is how decisions are arrived at and opinions formed that determines the validity of democratic decision making. The idea of communicative reason has distinct implications for education since there is a need to develop in children the competencies that enable participation in a pluralist public sphere through a pedagogical emphasis on discussion, negotiation, and collaboration. What this might mean for the development of deliberative democracy in an educational context has been further explored by writers such as Seyla Benhabib, Iris Marion Young, and Amy Gutmann. One criticism of Habermas's theory of democratic deliberation hangs on the suggestion that he fails sufficiently to recognize that asymmetric power is inscribed in the situation itself. This is an important consideration for children's participation in discourse where it seems that it is sometimes thought that inequality can be "good-willed" away. Similarly, Habermas's apparent equation of discourse and argumentation might serve to exclude certain groups, notably young children, whose mode of communication is not rational-logical or even linguistic. The question generally remains as to how the gap between our ideal and actual situations may be bridged.

Action Research and Ideology Critique

Action research plays an important role in teacher education, but the term itself has a number of different meanings. In Habermasian thought, it relates to the notion of *ideology critique*, an element in Marxist social theory that has as its aim the exposure of injustice. In his 1972 work *Knowledge and Human Interests*, Habermas outlines a process of inquiry that entails the hermeneutic investigation of a situation, a critique of that interpretation to identify the blatant or covert knowledge-constitutive interests, followed by a decision about how the situation may be altered to achieve greater equality, and, finally, an evaluation of the effectiveness of the action taken. This four-stage process may readily be applied to critical interventions in pedagogical situations, which reflect the teacher's commitment to education on the basis of equality and universal entitlement. Other forms of action research may be concerned solely with improving the technical aspects of teaching without reference to ethical-political

considerations, an interpretation that is at odds with the fundamental tenets of CT.

Conclusion

The continuing relevance of first-generation CT in educational theory and practice lies in the recovery of utopianism to drive and direct what educators do, without anticipating a particular future state. This is a difficult and delicate, intellectually open, middle way between the twin horns of the "efficiency agenda," which is shaped solely by a desire to measure and improve education as a process aimed at attaining a set of known goals (familiar to teachers in terms of talk of accountability and effectiveness), and the alternative, the imposition of an ideologically driven agenda for change. Such a conception of teaching as a politically significant, countercultural activity is consistent with constructivist theories of learning that give central importance to the fostering of critical self-reflection. Habermas's theory of communicative action focuses our attention on the way in which educational ends are determined, as well as on who participates in this discourse. His thinking also effectively mounts a direct challenge to the educational research community to engage in the immanent critique of its own privileges, knowledge-constitutive interests, and engagement with sociopolitical issues of pressing concern.

Sharon Jessop

See also Apple, Michael; Arendt, Hannah; Deliberative Democracy; Dewey, John; Marx, Karl

Further Readings

Adorno, T. (1998). *Critical models: Interventions and catchwords*. New York, NY: Columbia University Press.

Adorno, T., & Becker, H. (1983). Education for autonomy. *Telos, 56*, 103–110.

Carr, W., & Kemmis, S. (1986). *Becoming critical*. Philadelphia, PA: Falmer Press.

Held, D. (1980). *Introduction to critical theory: Horkheimer to Habermas*. London, England: Hutchinson.

How, A. (2003). *Critical theory*. New York, NY: Palgrave Macmillan.

Jay, M. (1973). *The dialectical imagination: A history of the Frankfurt school and the Institute of Social Research 1923–1950*. Berkeley: University of California Press.

Wiggershaus, R. (1986). *The Frankfurt school* (M. Robertson, Trans.). Cambridge, England: Polity Press.

Young, R. (1989). *A critical theory of education: Habermas and our children's future.* New York, NY: Harvester Wheatsheaf.

CRITICAL THINKING

The invention of critical thinking often is attributed to the early Greeks, especially to Socrates, some 2,500 years ago. Wherever it began, critical thinking properly is called an invention, as noted by the important 20th-century philosopher of science, Sir Karl Popper. Its emergence in the human species was not inevitable. It found a catalyst in the Socratic method, an approach to solving problems that relies on posing a series of questions the answers to which result in solutions to the problems. Thus, critical thinking can be thought of as an intellectual technology—an artifact designed to accomplish certain ends.

The critical examination of proposed solutions to problems often is hailed as the method of all rational discussion. The idea of criticism is not meant to be one of finding fault—in the sense intended, a person offering criticism might provide either a positive or a negative assessment. The key is that the criticism is accompanied by reasons, which point, in the case of negative criticism, to possible routes to improvement.

Critical thinking finds a natural home in education, because it has been equated to rationality. As such, critical thinking is central to education for several reasons. One reason related to the growth of knowledge, both in society and in individuals, is that critical thinking is the basis of the academic disciplines on which education places special emphasis. A moral reason for critical thinking is that dealing rationally with others—that is, dealing with them on the basis of reasons—is a key way of showing respect for those others, including students. When thought of in this manner, critical thinking must play a major role in formulating educational goals and in designing educational interventions.

This entry deals first with early and later formulations of the concept of critical thinking; second, with two major controversies that occupy much of the debate within the field, both dealing with different aspects of the generality of critical thinking; third, with the relationship between critical thinking and a cognate area of study, informal logic, that resides primarily within philosophy departments;

and, finally, with attempts to reach consensus on the meaning of critical thinking.

Early Formulations

The earliest uses of the term *critical thinking* in the 20th century were outside of the context of elementary and secondary (K–12) education. Critical thinking was associated closely with logic and with postsecondary education, as one can find in the work of Max Black. With such affiliations to logic, the concept of critical thinking referred to generalized standards and principles of reasoning on which reasons for judgments could be based. According to this view, reasons require generalized standards and principles as their basis, else they cannot serve as reasons. Consider an example. A person wishes to defend the continued exploration and exploitation of hydrocarbon resources and offers as a reason that the economy would suffer otherwise. When asked about why the economy matters, the person might respond that a suffering economy would lead to greater unemployment and more widespread pain and deprivation and that human pain and deprivation are to be avoided. The latter claim, that human pain and deprivation are to be avoided, is an example of a generalized standard to which one can appeal in order to support a very wide variety of other claims, including the one here about hydrocarbons. Lacking an acceptable generalized claim such as this one, the claim about hydrocarbons would appear arbitrary and as serving a narrow interest.

Critical thinking was brought into the K–12 educational context in the late 1950s by B. Othanel Smith and in the early 1960s by a seminal article authored by Robert Ennis. The focus continued to be on correctly assessing statements, which was proposed as the central meaning of critical thinking. The attention to statement assessment kept critical thinking tied very much to truth seeking and to the formation of belief—not in the sense of faith or trust but in the sense of conviction based on reasons and evidence.

Later Formulations

Critical thinking attracted considerable academic attention in the final two decades of the 20th century. During this period of active philosophical debate, three notable advances were made in the conception of critical thinking that have become widely accepted by the most prominent theorists in

the field. The ideas marking these advances already were nascent in the earlier formulations, but it took concerted attention to the meaning of critical thinking to render them more clearly and to bring them to widespread attention.

The first advance was the growing recognition that critical thinking must be focused not only on what to believe but also on what to do. This shift in focus meant that critical thinking must be directed to finding both what is true and what is right. Critical thinking would remain thinking based on generalized principles and standards, but these principles and standards would have to be expanded to include ones applicable to the moral and ethical domain, the touchstone disciplines for the study of right action.

The second advance was the realization that critical thinking must be directed toward the self as much as it is toward others. That is, it is necessary for critical thinkers to be fair-minded by assessing what they have said and done in addition to what others have said and done. Yet more than this is required. In making assessments of what others have said and done, critical thinkers must turn their critical thinking on their own assessments to guard against biases and unjustified assumptions that may have skewed these. It is incumbent on the critical thinker to be self-aware and to attempt as much as possible to eliminate or compensate for threats to fairness in judgment.

The third advance was to stress that critical thinking arises from a certain sort of character. The implication of this thought is that it is not enough to teach students *how* to think critically and to expect them to be critical thinkers. In addition to the knowledge of principles and standards, and to the skills of credibility assessment, making inferences, and analyzing arguments, students need to acquire critical thinking dispositions (such as fair-mindedness mentioned above) and the disposition to think critically when it is appropriate to do so. The fostering of dispositions is quite a different matter from the teaching of knowledge and skills. A person might have all the knowledge and skills needed to be a critical thinker, yet he or she may choose not to think critically or choose not to do so as frequently as appropriate.

The upshot of these three advances is that by the turn of the 21st century, critical thinking was not simply another educational goal with academic consequences, such as educating for better-thinking scientists. Teaching critical thinking was seen as an effort to instill character. In the first instance, critical thinkers were to focus on making decisions that lead to right actions—that is, on actions that can be justified by sound moral and ethical reasoning. Second, critical thinkers must focus on their own thoughts and hold themselves to the same standards of critical thinking to which they hold others. Third, critical thinkers must be fair- and open-minded individuals who base their decisions about what to believe and do on reasoned reflection. So, in addition to a manner of thinking, critical thinking had been elevated to a moral stance that educational systems should adopt and to which teachers and students should be encouraged to aspire.

Subject Specificity

One of the most heated debates about critical thinking concerns its generality. The debate has been framed in at least three ways. First, there is the question of whether critical thinking taught in one domain of knowledge or subject area will transfer in use to other areas. The doubters have said that little transfer occurs and can be expected to occur, so there is little reason to attempt to teach critical thinking in general. Critical thinking should be taught in the context of each subject. Some, however, have argued that at least the most general logical principles transfer from one subject to another, and perhaps other principles transfer as well, such as those used to assess the credibility of sources or to discern the structure of an argument. Moreover, some involved in the debates have argued that critical thinking dispositions, such as open- and fair-mindedness and the disposition to think critically when appropriate, are fully transferable from one domain to another. Still another group maintains that considerable conceptual clarification about the distinction between domains and subject areas is needed before empirical research can yield any answers to the question of critical thinking generality understood in this sense. Where, for example, does biology end and chemistry begin? If you think there is a clear line between these subjects, then what is to be made of the subject of biochemistry? Yet, unless a clear line can be drawn, what sense can be made of the claim that critical thinking taught in the context of biology will not transfer to thinking critically in chemistry?

Second, there is the question of whether the principles and standards of critical thinking vary from subject to subject. There is a group of theorists who have argued that critical thinking simply is different in, for example, physics than it is in history. According to this group, there is nothing to transfer

from one subject to another—critical thinking must be taught in the context of each subject because it is manifested differently in each one. Critics of this view respond much as they do the first position. They maintain that the same general logical principles apply in history as they do in physics; that judging the credibility of a source of information relies on the same principles and standards in history as it does in physics; and that being open and fair minded are the same dispositions in each field. Finally, there are those who point out the vagueness in the distinction between subjects. If you wish to maintain that the principles and standards of critical thinking are different from subject to subject, what do you say about a subject like biomechanical engineering housed in a medical school? You need to be able to distinguish that subject from biology, from engineering, and from medicine.

Third, there is the claim made most prominent by John McPeck that because critical thinking is always thinking about something, there is no sense in talking of critical thinking in general. Because no sense can be made of critical thinking in general, critical thinking in general cannot be taught. This argument has been rejected widely because it fails to demonstrate a link between the two propositions. Several analogous cases have been proposed where the connection does not hold. For example, although bike riding is always riding some bike in particular, that does not mean there is no bike riding ability in general. The defender of the view needs to show that even though the connection does not hold in the bike-riding example, it still does hold in the critical thinking example because the examples are not analogous. No defender has successfully made this case.

Critical and Creative Thinking

Another challenge to the generality of critical thinking is that it leaves out an important form of thought—creative thinking. Theorists of creative thinking have tended to reject this characterization. On the one hand, it is a documented fact that inventions, scientific discoveries, and artistic performances—all undeniably creative achievements—require the exercise of critical judgment in their execution. On the other hand, critical thinking typically requires imagining alternatives and likely outcomes and devising approaches to problems—once more, all undeniably creative achievements. Thus, it is broadly recognized that

critical thinking plays an essential role in creative thinking and that creativity is at the heart of thinking critically.

Critical Thinking and Informal Logic

There are two other fields of study, informal logic and argumentation, that are aligned closely with the study of critical thinking. The second of these is associated primarily with the field of linguistics and will not be discussed further in this entry. The first, informal logic, finds its home in philosophy departments and has fostered a link with philosophers of education. Informal logic began in part as an alternative to formal logic, which of course is an important part of the philosophy curriculum in colleges and universities. The issue was that formal logic does not help an individual deal with everyday problems, framed in everyday language, that nevertheless require systematic thought—or at least, formal logic does not provide such help clearly or directly. Informal logic grew as an attempt to provide such systematization. The primary focus of informal logic is on arguments (i.e., lines of reasoning offered to support conclusions)—how to analyze their structure, how to identify implicit statements in them, how to assess them, and how to counter them. As such, informal logic is closely related to critical thinking, but it differs in having a narrower focus. Nevertheless, the areas of study are closely allied.

A Consensus Meaning

It is sensible to ask whether consensus exists on the meaning of critical thinking. About two decades ago, the American Philosophical Association sponsored a study that attempted to answer this question. The research employed a Delphi method, which involved a panel of experts participating in several rounds of discussion aimed at achieving consensus on answers to a series of questions. (The consensus was understood as a majority judgment, not a unanimous one.) The characterization of critical thinking as consisting in skills and dispositions was supported by the report. Although not explicit on the question of the generality of critical thinking, the entire tone and mode of expression of the report implied clearly that critical thinking was thought to be generalizable to all or most subjects and problems requiring good thinking. Close affinity with creative thinking was acknowledged but not explored beyond that. Long lists of critical thinking skills and subskills and dispositions were provided, and consensus was claimed

about these. However, given the research method employed and the argumentative nature of the field, it is perhaps wise to place less trust in the claimed consensus on the specifics than on generalities such as the two named earlier in this paragraph.

Stephen P. Norris

See also Education, Concept of; Epistemology, Multicultural; Knowledge, Analysis of; Popper, Karl; Rationality and Its Cultivation; Socrates and Socratic Dialogue

Further Readings

Bailin, S. (1994). *Achieving extraordinary ends: An essay on creativity.* Norwood, NJ: Ablex.

Black, M. (1946). *Critical thinking.* Englewood Cliffs, NJ: Prentice Hall.

Ennis, R. H. (1962). A concept of critical thinking. *Harvard Educational Review, 32,* 81–111.

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction: Research findings and recommendations.* Newark, DE: American Philosophical Association. (ERIC Document Reproduction Service No. ED315423)

McPeck, J. E. (1990). *Teaching critical thinking.* New York, NY: Routledge, Chapman & Hall.

Norris, S. P. (Ed.). (1992). *The generalizability of critical thinking.* New York, NY: Teachers College Press.

Paul, R. (1981). Teaching critical thinking in the "strong" sense: A focus on self-deception, world views, and a dialectical mode of analysis. *Informal Logic, 4*(2), 2–7.

Popper, K. R. (1994). *The myth of the framework.* London, England: Routledge.

Siegel, H. (1988). *Educating reason: Rationality, critical thinking, and education.* New York, NY: Routledge.

Smith, B. O. (1953). The improvement of critical thinking. *Progressive Education, 30*(5), 129–134.

Cultural Literacy and Core Knowledge/Skills

Cultural literacy is shorthand for a defined body of shared knowledge, skills, and sensibilities that reflect the values, attitudes, and tastes of a dominant culture. Proponents of cultural literacy argue that if all members of a community can activate a common reference system, they will be able to communicate more successfully with one another, be more effective political participants, prevent grievous repetitions of history,

avoid reinventing the wheel, and foster humanistic ideals through exposure to the best, most beautiful, and intelligent works of mankind. Altogether, cultural literacy is seen as laying the essential groundwork for advanced education and critical thinking. This conception of the humanistic and cultural benefits of general education is a legacy of the 19th-century British poet and thinker Matthew Arnold. This entry discusses the potential benefits of cultural literacy, concerns about what facts and ideas are emphasized, and the controversy over the common core movement in the United States.

The debate over cultural literacy was a touchstone of the culture wars that took place during the 1980s and 1990s, and this entry will outline the major positions advanced on both sides of the issue. The publication of E. D. Hirsch's book *Cultural Literacy* in 1987, followed one year later by his *Dictionary of Cultural Literacy*, ignited a furious controversy over the benefits and demerits of holding all students to a prescribed canon of knowledge and making them study approved sets of great works. A large number of detractors of cultural literacy, mostly from academia, questioned the usefulness and legitimacy of this approach and condemned the motives and effects of the method. They advocated instead a more contingent, flexible, skills-oriented, and child-centered curriculum.

Those who oppose the idea of cultural literacy object to the kinds of value judgments that proponents of cultural literacy habitually make: Galileo Galilei and Virginia Woolf are more important than Giambattista Vico and Violet Hunt. The gulag is more important than the Battle of Alcatraz. Heisenberg's uncertainty principle is more important than the Heisman Trophy. As with any list, cultural-literacy primers are open to attack on matters of inclusion and exclusion. But supporters of cultural literacy insist that to aspire to the highest standards of excellence, value judgments are ultimately inevitable, even if they are unpopular in certain quarters and are labeled elitist or ethnocentric. At the same time, advocates of cultural literacy such as Diane Ravitch and William Bennett acknowledge that setting precedents of importance and canons of excellence does not mean avoiding metacritical debates over the rationale involved in making these judgments. Nor does it mean that the cultural productions of "lesser" or nondominant cultural formations do not deserve close study and sustained attention if they are deemed important in their own right. It does mean, however, that cultural

literacy fosters loyalty to a cultural formation deemed dominant.

Attacks against cultural literacy that characterize it as popularizing an ossified curriculum can be blunted by reference to the history of American general education. What is considered essential "core" knowledge has changed over time—from the study of classical languages and rhetoric in colonial times, to the Great Books approach of the mid-20th century, to the emphasis on information literacy today. One thing has remained despite all of these changes: Cultural literacy places a premium on memory. It is deemed essential that certain facts of history (including the history of art, literature, and ideas) are kept alive from generation to generation to generate a sense of continuity and to foster an expanding store of cumulative knowledge. Ravitch argues that this knowledge base, far from inhibiting critical thinking is, in fact, its crucial precondition.

Critics of the idea of cultural literacy, including Stanley Aronowitz, Henry Giroux, and Peter McLaren, have argued that it is an exclusionary, ethnocentric, and reactionary strategy aimed at maintaining the socioeconomic status quo. Not only were defenders of cultural literacy seen as old-fashioned information mongers, but they were also condemned as elitist gatekeepers of privilege, creating an atmosphere of stifling conformity. The go-to authority of such views was the Brazilian education theorist Paulo Freire, whose 1970 essay on the "banking concept of education" (first published in *Pedagogy of the Oppressed*, 1970) associated the idea of inculcating a shared body of common knowledge with the dehumanization of learners, who are transformed into passive receptacles of data. Against this banking concept, Freire proposed a problem-solving type of learning that is attuned to local knowledge, involves dialogue between teacher and student, and aims at change rather than stasis.

By contrast, American proponents of cultural literacy maintain that a common core of knowledge and skills, including knowledge of the Bible, world literature, world history, politics, geography, economics, technology, math, and Standard English, is the currency needed to participate in the marketplace of ideas. According to this line of argument, the conversations conducted by those in power have been shaped by (mostly private) elite schooling, which puts a strong emphasis on core learning. Elite preparatory schools such as Phillips Academy in Andover, Massachusetts; Roxbury Latin School, also in Massachusetts; and the Lawrenceville School

in New Jersey provide the bases of a liberal arts education encapsulated in phrases such as "solid grounding in the fundamentals," "core curriculum," or even "Homer and Virgil." The types of conversations that the graduates of these elite schools initiate on college campuses, in board rooms, at political meetings, or during cocktail parties cannot be joined by those who lack a sufficiently sophisticated reference system, thus relegating them to the margins.

The college classroom is a particularly instructive laboratory for testing the viability of cultural literacy. Those who cannot spell properly, who write (and speak) nonstandard English, whose vocabulary is limited, whose historical knowledge is sketchy, whose sense of geography is skewed, and whose literary and artistic reference system is thin are often unable to join the conversations held in college classrooms and tend to drop out in frustration. Or they may not gain admission to their dream college in the first place. As the growing socioeconomic imbalance at elite colleges shows, applicants from schools that promote solid core knowledge outperform those from institutions with less emphasis on rigorous core curricula. Of course, factors other than school curricula also affect educational outcomes and admission to elite colleges, as children from prosperous households enjoy a plethora of advantages over their less privileged peers, ranging from a menu of enrichment activities to often more stable family structures. Still, cultural literacy can be viewed as a way to even the playing field rather than as an insurmountable obstacle for those hailing from less affluent environments.

Opposition to cultural literacy is energized by what some see as the specter of a national curriculum. In the United States, Congress has instituted considerable barriers to implementing a national curriculum. Even the "Common Core Standards," adopted by President Obama's Department of Education, have been attacked as possibly unconstitutional. Although these Common Core Standards are de facto voluntary, because states can opt to implement them, the fact that such adoption is linked with funds via the "Race to the Top" (a policy created by the U.S. Department of Education to spur innovation and reforms in state and local district K–12 education) makes them vulnerable to the charge of introducing a national curriculum through the back door. At the time of this writing, 46 states and the District of Columbia have effectively adopted the Common Core Standards developed by the National Governors Association

Center for Best Practices in collaboration with the Council of Chief State School Officers. In substance, these standards outline the foundational skills and appropriate levels of analytical rigor with which subjects in mathematics and English-language arts are to be taught at any given age. Whatever lists of texts are provided should not be deemed prescriptive but merely illustrative of the complexity, quality, and range of materials that should be taught. The suggested literary texts reflect significant racial, ethnic, national, gender, class, and age diversity, thus alleviating concerns about modeling a restrictive and lopsided canon. In all, the Common Core Standards prioritize a skill-based vision over a content-based vision of cultural literacy, and they are thus miles apart from the more prescriptive vision of cultural literacy advanced by Hirsch.

While the test-based approach of the No Child Left Behind law has been almost universally acknowledged as a fiasco, critics who aver that the Common Core Standards will further entrench mediocrity are making speculative judgments. Most European education systems are based on a national curriculum, although differences between individual nations exist. These national curricula lay out in more or less detail a common core of subjects and skills that should be covered in all schools. Critics of the American Common Core Standards movement would need to answer why a national curriculum is undesirable if nations like the Netherlands, Finland, and South Korea—which do feature a national curriculum—produce students who habitually outperform their American counterparts in reading, math, and science literacy (Organisation for Economic Co-operation and Development, 2009).

Opponents of cultural literacy often invoke the "lists" of cultural-literacy proponents as the principal damning evidence to disqualify the whole project. They reasonably contend that lists are not equivalent to learning. But the initiator of the cultural-literacy debate, Hirsch, himself, emphasizes that the lists of learning objectives specify merely desired (or prescribed) outcomes regardless of the specific pedagogic techniques used to reach these objectives; they are not formulas to be memorized for their own sake. Hirsch distinguishes between an extensive and an intensive curriculum. While the extensive curriculum leans more heavily on factual learning and list-driven learning, the intensive curriculum leaves much room for flexible approaches. With this two-pronged approach,

Hirsch is aiming to balance compulsory broad coverage with optional in-depth learning that allows for individual and local choice. Again, such an approach almost exactly mirrors the academic philosophy of the elite private schools in the United States.

Even those who are in favor of strengthening the teaching of cultural literacy are not claiming that it is the alpha and omega of education. Rather, they see it as the building of a solid, versatile foundation. Real in-depth learning, critical thinking, and problem solving can only be established on the basis of this quintessential body of information and skills. In this sense, cultural literacy is not an end in itself but a sophisticated tool set.

Bernard Schweizer

See also Achievement Gap; Curriculum, Construction and Evaluation of; Essentialism, Perennialism, and the "Isms" Approach; International Student Assessment (PISA); Literacy and the New Literacy Studies; Multiculturalism

Further Readings

Anson, C. M. (1988, February). Book lists, cultural literacy, and the stagnation of discourse. *English Journal, 77*(2), 14–18.

Council of Chief State School Officers, National Governors Association Center for Best Practices. (2010). *Common Core State Standards*. Washington, DC: Author. Retrieved from http://www.corestandards.org

Freire, P. (1970). *Pedagogy of the oppressed*. New York, NY: Herder & Herder.

Gray, D. J. (1988, January). What *does* every American need to know? *Phi Delta Kappan, 69*(5), 386–388.

Hirsch, E. D., Jr. (1988a). *Cultural literacy: What every American needs to know*. New York, NY: Vintage Books.

Hirsch, E. D., Jr. (1988b). *The dictionary of cultural literacy*. Boston, MA: Houghton Mifflin.

Organisation for Economic Co-operation and Development. (2009). *Programme for International Student Assessment (PISA), 2009 Results* (Vols. 1–6). Retrieved from http://www.oecd.org/pisa/keyfindings/pisa2009keyfindings.htm

Ravitch, D. (2009, February 24). *21st century skills: An old familiar song* (Remarks at a panel on 21st-century skills). Retrieved from http://www.commoncore.org/maps/documents/reports/diane.pdf

Simpson, A. (1991). The ues of "cultural literacy": A British view. *Journal of Aesthetic Education, 25*(4), 65–73.

Westbury, I., & Purves, A. C. (1988). *Cultural literacy and the idea of general education*. Chicago, IL: National Society for the Study of Education.

Wood, P. (2012, February 24). The core conundrum. *The Chronicle of Higher Education*. Retrieved from http://chronicle.com/blogs/innovations/the-core-cunundrum/31719

CURRICULUM, CONSTRUCTION AND EVALUATION OF

While education can take place without teachers, administrators, or school buildings, a curriculum is required in any educational scheme, for a curriculum is a plan of action that sets out learning activities about some subject. Since instructional time is limited, decisions must be made whether to include topic x or topic y; curriculum constructors make these decisions, explicitly or tacitly, based on educational purposes that act as filters to determine what to include. Curriculum construction also involves questions about how to design or organize the content of the curriculum since everything cannot be taught at once. How questions of purpose and design, which are interrelated, are answered is consequential since these two factors direct teaching and learning in some ways rather than others. Curriculum evaluation is the process of gathering and using information about a curriculum, usually to improve it or judge its effectiveness. This entry discusses the way in which decisions are made about curriculum construction, changes in the approach to curriculum construction since the late 1800s, and different approaches to curriculum evaluation.

The Scale and Timing of Curriculum Construction

Curriculum construction normally occurs as a result of a policy decision. These types of policies are broad statements about the subject with which a curriculum will deal and the purposes it is intended to accomplish. Policy decisions are made by authorities at a variety of levels, including national and international as well as regional and community levels. Policy sets boundaries within which curricula are constructed.

Curriculum constructors interpret policy and develop specific plans and materials for students and teachers to use. These plans and materials can range from skeletal outlines of content to instructional scripts. A curriculum may be generic or made for a more restricted population. A generic construction is intended for any student or teacher of a given description, and it is typically constructed at a distance from where it will be used. Examples include state- or provincial-level curricula and curriculum packages intended for dissemination across large areas. Local curriculum construction is more likely to be targeted to the identified needs of a specific population of students and teachers. Local construction more likely involves the cooperation of potential users of the curriculum than does generic construction.

Generally, curriculum construction is regarded as an activity occurring in advance that formulates activities and identifies materials used in instruction. As Philip Jackson observed, there is a significant distinction between this "pre-active" sense of curriculum and "interactive" curriculum, which is an outcome of the interactions among instructional materials, teachers, and students. In an interactive sense, curriculum is at least partially constructed in use. This could manifest itself in a number of ways. John Dewey (1998) noted two of them. First, the effects of "collateral learning" from classroom routines may inculcate enduring habits and attitudes that are just as important as the formally stated objectives of a lesson. Second, he endorsed the participation of the student in forming the purposes of what is studied. Twentieth-century examples of interactive curriculum include the project method developed by William Heard Kilpatrick in the United States and open classrooms in the Plowden-oriented primary schools of England—primary schools of England influenced by a 1967 parliamentary report, headed by Lady Bridget Plowden, that promoted student-centered learning.

Approaches to Curriculum Construction

As Herbert Kliebard (2002) has documented, the modern sense of curriculum as an objectives-driven planned sequence of learning activities only emerged in the United States toward the close of the 19th century. In the 1890s, the first national committees were formed to determine what should be taught in the burgeoning public schools. Although these committees broke new ground, they conformed to tradition by retaining school subjects as the building blocks of the curriculum—although, to be sure, the "modern" subjects were not necessarily the same subjects or in the same form as those in the classical curriculum.

This conception of the curriculum reflected the significant role played by subject specialists from colleges and universities in the committees. Much of the resultant curricula mimicked the subject organization of the college curriculum. Although sometimes challenged as a curricular form of organization, its champions, such as Mortimer Adler, have argued for subjects as the basis for curriculum construction down to the present day.

By the early 20th century, however, the hold of college- and university-based subject specialists in curriculum policy and construction was challenged. More heterogeneous groups claimed a voice in curriculum, as did the first self-styled curriculum specialists. A prominent example of the former is the National Education Association, which convened a commission on secondary education, producing a report, *Cardinal Principles of Secondary Education*. The commission began its deliberations by considering the aims of secondary education in a democratic society, which did not necessarily devalue the role of school subjects but nor did it automatically afford them a pride of place.

Progressive scholars and professionals in the United States during the early 20th century placed great faith in science and efficiency. Thus, it is scarcely surprising that this faith found its way into the thinking of the newly minted profession of curriculum specialist. Perhaps more remarkable is the extent to which the assumptions of the so-called scientific curriculum construction have remained widely accepted into the 21st century. One of the major branches of scientific curriculum making found inspiration in studies of efficiency conducted in industry. Leading proponents of this view—the view that curriculum should be based on efficiency—such as Franklin Bobbitt and W. W. Charters, did not question that schools existed to serve the purposes of the existing social order; later in the century, neo-Marxist social critics and others, such as Michael Apple, were to go somewhat further and claim that school curricula served the purposes of the ruling class in a society. Bobbitt, however, argued conservatively that curriculum construction should begin with activity analysis. That is, curriculum makers should survey the activities—both occupational and leisure oriented—that children would have to perform as adults. This would provide a supposedly impartial scientific basis, since the social needs and activities were "discovered" rather than being the mere preferences of some authority for constructing objectives and learning activities. In this approach, traditional academic subjects were valued only insofar as they contributed to the demands of future living. Although sharing the faith in science of the times, Dewey held a different conception of science. He strongly argued that Bobbitt's emphasis on preparing for the future was misplaced. Dewey insisted that the only way a curriculum could prepare students for the unknown future was by fully engaging them in the demands of present living.

Not all scientific curriculum constructors had the intrinsically conservative purposes of the Bobbitt-Charters approach. For example, Harold O. Rugg marched with the times in his embrace of scientific curriculum making, but he saw curricula as being devoted to the cause of social reconstruction rather than social adaptation. Rugg constructed curricula focused on identifying and finding solutions to problems of society.

Perhaps the most famous approach to curriculum construction was presented by Ralph W. Tyler in 1949. It became known as the "Tyler rationale." In earlier years, Tyler had worked as an evaluator of a variety of curricula. This possibly accounts for his conceiving the curriculum constructor's task as more about identifying the questions *any* curriculum constructor must answer than providing his own answers to those questions. Tyler's starting point was identifying objectives. Rather than creating the objectives, Tyler said they could be obtained from sources such as the nature of the learners, the demands of life outside of school, and subject specialists. This was supposed to avoid the danger of curriculum constructors imposing their own values through determining objectives. Critics such as Kliebard note, however, that specifying which sources should be looked to as a source of objectives was itself an imposition of values. Moreover, Tyler's scheme bears more than a passing resemblance to Bobbitt's "discovering" educational needs.

One of the major conclusions of research since the 1960s is that the implementation of a curriculum, which is not always considered a part of "construction," may be as important in determining what actually is enacted in classrooms as the materials developed in advance.

Curriculum Evaluation

Authorities and other stakeholders often want information about a curriculum: What happens to this plan of action, and what effects does it have? Often student performance is taken to be the main, even

sole, index of a curriculum's effectiveness. As Elliot Eisner (2002) points out, this approach omits other potentially significant factors that may affect how the program turns out, such as the quality of its design, the clarity of its objectives, and its suitability for a given audience. Below are some of the major issues in curriculum evaluation.

In 1967, Michael Scriven famously suggested that one way of thinking about methods of evaluation is to distinguish between "formative" and "summative" modes. That is, formative evaluation is intended to provide feedback to a program (either while it is under development or when it is complete); the purpose is to provide guidance about making improvements. Summative evaluation, on the other hand, is intended to provide an overall assessment of the program (possibly because a decision is imminent about whether to continue using the curriculum or adopt a new one). A chef tasting a dish while cooking it is doing a formative evaluation; a restaurant critic sampling it is doing a summative evaluation.

Evaluators sometimes disagree on what yardstick to use to judge the effectiveness of a program. Often a program's performance is compared with its previously determined goals. One problem with this approach is that curricula, for reasons already touched on, change during their enactment, possibly creating potential for outcomes not envisaged by the setters of the original goals. With this in mind, Scriven argued that evaluators should be most concerned with the effects of a program rather than being preoccupied with whether it met its initial goals.

Evaluation would also seem to invite comparisons among programs, seeking the most effective of them.

This is a sensible-sounding aspiration. But it turns out to be difficult to accomplish. As Lee Cronbach (1963) pointed out, the variation within one group studying the same curriculum is frequently greater than effects attributable to one curriculum versus another.

Stephen J. Thornton

See also Apple, Michael; Cardinal Principles of Secondary Education; Dewey, John; Hidden Curriculum; Project Method

Further Readings

Cronbach, L. J. (1963). Evaluation for course improvement. *Teachers College Record, 64,* 672–683.

Dewey, J. (1998). *Experience and education.* West Lafayette, IN: Kappa Delta Pi.

Eisner, E. W. (2002). *The educational imagination: On the design and evaluation of school programs* (3rd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Flinders, D. J., & Thornton, S. J. (Eds.). (2013). *The curriculum studies reader* (4th ed.). New York, NY: Routledge.

Kliebard, H. M. (2002). *Changing course: American curriculum reform in the 20th century.* New York, NY: Teachers College Press.

McLaughlin, M. W. (1976). Implementation as mutual adaptation. *Teachers College Record, 77,* 339–351.

Scriven, M. (1991). Beyond formative and summative evaluation. In M. W. McLaughlin & D. C. Phillips (Eds.), *Evaluation and education at quarter century* (pp. 19–64). Chicago, IL: National Society for the Study of Education.

Tyler, R. W. (1949). *Basic principles of curriculum and instruction.* Chicago, IL: University of Chicago Press.